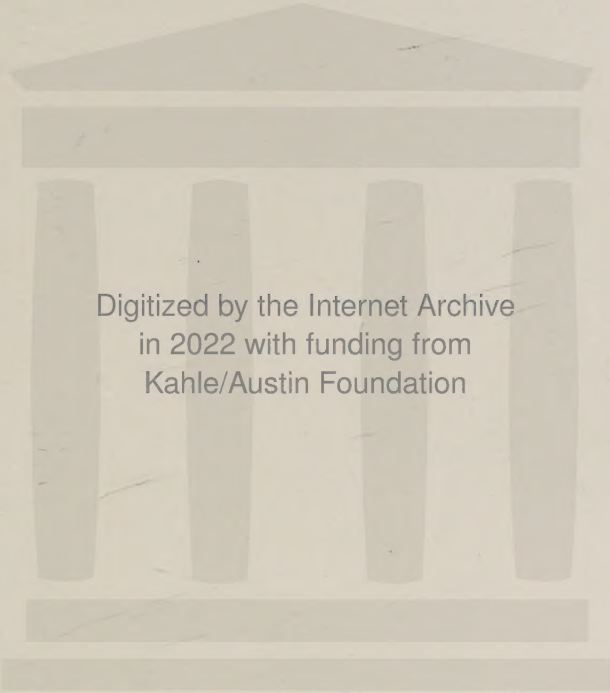


The BOOK of PERENNIALS

▼
Alfred C. Hottes



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Even the simplest of plantings can be satisfying

The Book of Perennials

By

ALFRED CARL HOTTES

FORMERLY EDITOR, BETTER HOMES AND GARDENS,
PROFESSOR OF HORTICULTURE,
OHIO STATE UNIVERSITY



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PREFACE

THE perennials of the world have been assembled from mountain and plain, from waterside and desert, and the object of this book is to point to methods of outstanding success in growing each.

The perennials chosen for this book have garden value—either they are so strong that they almost care for themselves, or they are so exquisitely charming that they warrant any amount of time or care to bring them to their true perfection.

To assist the amateur, the language is non-technical; the illustrations are the best obtainable; the cultural notes are explicit; helpful lists and tabulations were constructed; the pronunciation of the more difficult names is given. Seedsmen and nurserymen issue catalogs each year which must necessarily be briefer than the inquiring garden lover desires. Each grower carries a few distinctive varieties, selected for color or habit, so that these catalogs are invaluable as a supplement to this book.

The names used are, for the most part, the Standardized Plant Names agreed upon by the American Joint Committee on Horticultural Nomenclature. When several names appear in parentheses, they indicate those in general use but not approved by that Committee. If the reader is desirous of more definite descriptions of herbaceous perennials, he should refer to L. H. Bailey's "Manual of Cultivated Plants" and to "Hortus."

The writer owes a debt to the many garden lovers who have told him their experiences—their successes in culture and propagation. He hopes to enjoy the suggestions of his readers and will welcome their corrections, additions and criticisms.

ALFRED C. HOTTES.



LET'S PLAN A PERENNIAL GARDEN

EAGERLY each Spring the perennial flowers burst from the soil to gladden our eyes and quicken our pulse. Perennials are the plants which remain in our gardens year after year in contrast with the annuals, which grow from seed and disappear when the frost arrives.

Such old-fashioned flowers as Iris, Peonies, Phlox and Delphinium have been the perennial mainstays of our grandparents and their grandparents before them. To say that a flower is "old fashioned" indicates that it has gained and held the admiration of generations of flower lovers.

FROM WHENCE THEY COME

Persons of each nationality coming to our shores brought with them the old favorites of their ancestral homes. Some of these flowers are still choice and others have become veritable weeds. Today the Bouncing-bet, the Tansy and the Tawny Daylily are abundant. Few persons realize that these are introduced plants and not native flowers to the region. Even the Sweetbrier Rose which grows in many pastures of the East is merely a gypsy that strayed from some Colonial garden and, like the real pioneers, set up its own habitation in fresh fields. Hundreds of wild flowers are seldom considered such because they have been growing in our gardens for years. The Beebalm, Virginia Bluebells, Helensflower, and the Blanketflower are examples of native flowers transplanted to our cultivated gardens.

Of the vast array of flowers some persons give little thought to origin. Nevertheless, some one has admired each of our garden plants. They have been transplanted from the wild forest, the green meadow, the shelved mountain ledge, the rocky brookside, the watery lowlands,

or the level prairies. Some one has brought these flowers from flowery Japan, tropic Africa, or from the home woodlot. Many have responded to care but not a few others have had to be carefully bred. Men have crossed and recrossed these plants, saved their seed, fondled their offspring, chosen the best, and finally perhaps they have named them for friends or other men whose work or interest in flowers has earned for them this signal honor.

PYGMALION PERENNIALS

Some of the flowers of yester-year may have been grasping weeds but today they are choice flowers for the garden—glorified weeds we might call them.

You will recall the story of the Pygmalion, a girl of the London streets, with a cockney accent and with such behavior as we would call a weed among our plants. Careful education to take up the graces in action and speech resulted in her insistence upon the life of a duchess born to court. At last she was just what she pretended to be. So many of our weeds have been taught to wear their noses high, rouge their lips, and curl their hair. We have adopted them in our gardens and now they refuse to leave.

The more we study flowers the fewer weeds there are. Every flower has some point of interest, some mechanism of pollen distribution, a curious adaptation to its life, perhaps a subtle scent, maybe an unusual seedpod, and some of these perennials we grow in our gardens year by year, knowing full well that their ways are grasping, yet we cannot help but admire their persistence. The commonest example coming readily to mind is the Rosy Milfoil, a variety of our common Yarrow. Then there is the Sneezeweed of the ditches, which in its improved form we have called Helensflower. There are the various perennial Sun-flowers, Asters, Heliopsis and False-Dragonhead.

GARDEN SHARING

Who is there with a flower garden who does not share these blooms with his neighbor? Better still, few of us hesitate to break up our clumps to give a start to our friends. Most plants need such division at regular intervals. That garden becomes interesting which is made up of plants given you by your friends; each of these flowers deserves careful culture to bring it to such a state of perfection as will indicate your appreciation of your friend, the giver. A memory garden contains more than plants. Each plant subtly expresses some little incident in the life of its donor.

LET'S HAVE THE BEST

The progressive garden lover each year adds some of the new kinds of plants to his garden. He notes who sells the best, who has contributed to the improvement of his favorite flowers, and accordingly purchases from these sources. What are a few cents in additional cost? Some kinds increase tenfold in a year. Year after year seedsmen, flower specialists and nurserymen send you their catalogs at considerable expense. They are anxious to render you every service. They are encouraged to find that their efforts are not in vain and that people are becoming increasingly interested in the better varieties. When you ask for Peony Le Cygne they are pleased. They know that you have passed the stage where "just Peonies" are sufficient because you are inquiring for some of the elite varieties.

USE OF PERENNIALS

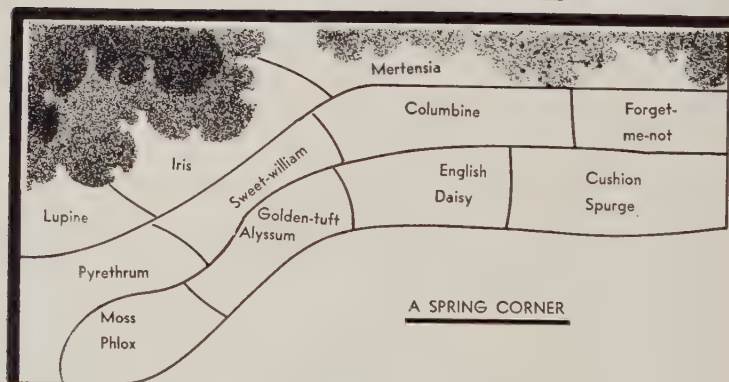
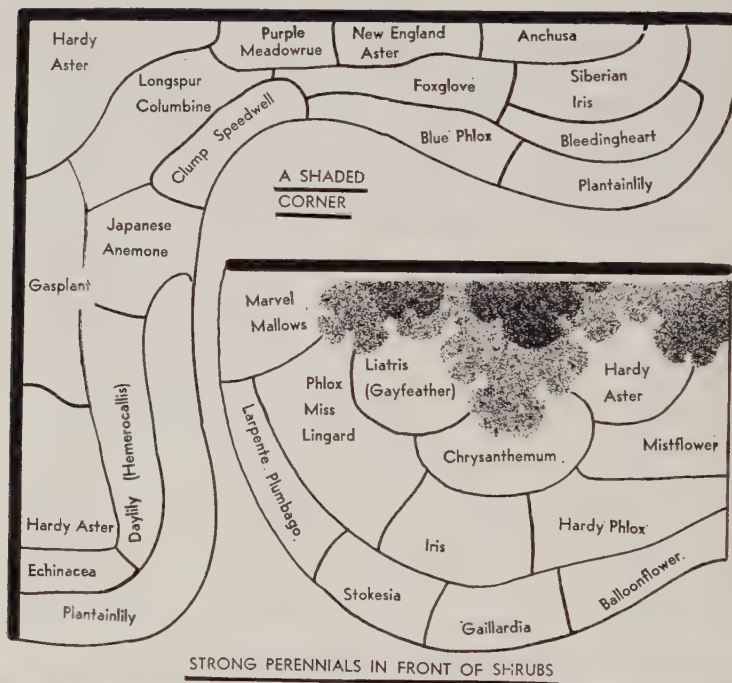
Gradually through the years each sort of perennial has its sponsor. Whole gardens are now planned of one kind alone, and national societies flourish to honor individual flowers. For most of us, however, a variety of perennials is more desired than a short seasonal flourish of bloom. We tuck them in beds in front of the shrubbery. We put them in long formal borders surrounding the lawn area of our outdoor living rooms. We plant rockeries with them and encircle our pools to make their surroundings seem more natural. In fact, we believe that perennials are at home in any place except when planted hit and miss, breaking the cool, even surface of a lawn.

Borders may be formal or informal. The plants may be set in definite, ribbonlike bands, or placed in natural clumps. Generally the latter method is to be preferred, unless we are planning a prim garden of geometric form. Assuming then that enough space is available, it is often interesting to have two borders separated by grass, gravel or a stone walk.

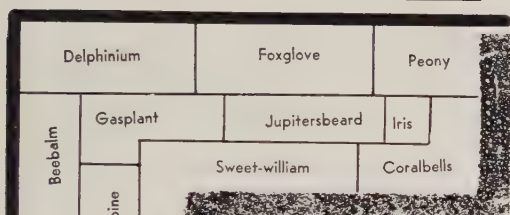
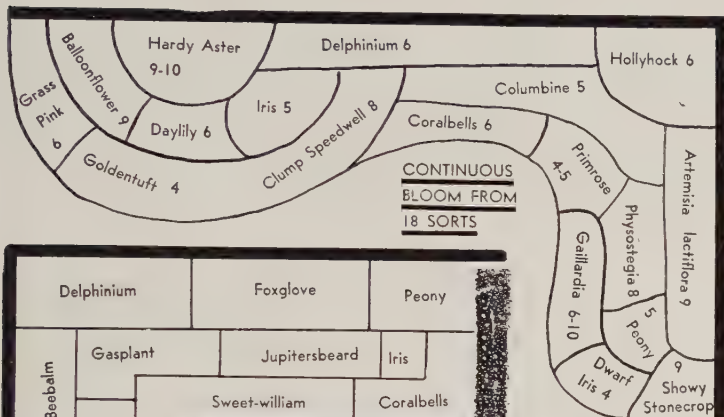
PLANNING THE PERENNIAL GARDEN

To derive the greatest satisfaction the border should be planned on paper. Some persons will say they are gardeners not draftsmen. Yet no drawing ability is necessary. The idea of sketching is merely to place the plants properly so that we may have continuous bloom throughout the entire length and breadth and that the colors may be combined to bring out their true beauty.

THE BOOK OF PERENNIALS



Perennial borders of several sorts planned

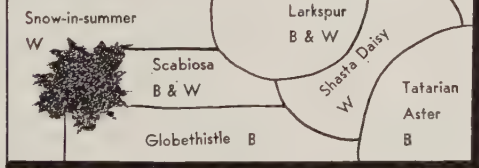


FORMAL BORDER IN SPRING

Such borders may be adapted to various lengths and breadths. They suggest the relative position of plants only

BLUE AND WHITE CORNER

B—blue W—white



HEIGHTS

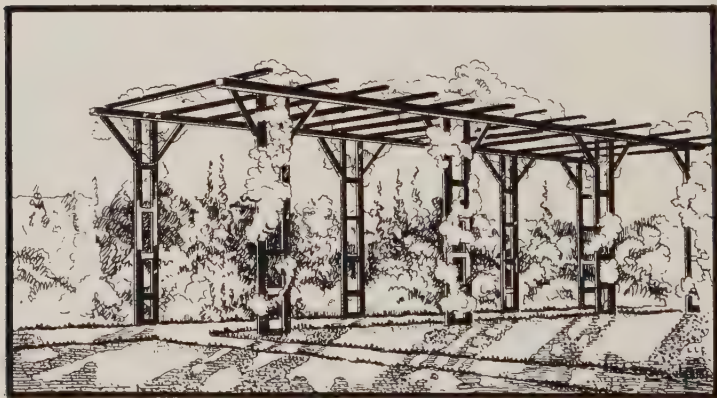
Obviously, the tall plants should be at the back of the border, the dwarf edging plants in the front and those of medium height tucked in between the two extremes. Nevertheless, this rule should not be followed too strictly, otherwise the result will give a border which will be too monotonous. Allow bold groups of tall plants to come to the front of the border. For the best effects in the Springtime some of the earliest dwarf plants may be planted toward the center to give a mass of color throughout the width of the border.

WIDTHS

The border should be at least 4 feet wide; otherwise the grass roots will intrude and rob the flowers. The border may be 12 feet or wider, in which case larger masses of flowers may be planted. Nature produces its flowers in profusion and so must we if our borders are to give us the maximum satisfaction. Good, big eyefuls of color are impressive; little dabs of color seem puny and artificial.

BACKGROUNDS

It is advisable to have an ample background of perennials or distant shrubs behind the shorter growing sorts. A lattice fence, a border of shrubs or a hedge will serve to set off the colors of the flowers. None but the most robust perennials should be planted directly in front of a



The pergola can be used to frame various sections of a perennial border

hedge or border of shrubs, for the flowers are sure to be robbed of food and moisture. Leave a space of 2 feet between the hedge and the bed of flowers. Shrubs and conifers may be planted here and there in the perennial border to advantage in order to produce bays of tall, green foliage masses. The illustration on page 6 shows various sections of a border framed by the arches of a pergola. When there is a border on both sides of a walk much interest is added by arches across the pathway. There need not be more than one or two in a border 50 feet long. Too many arches would tend to detract from the border of flowers.

SEASONS

Shall the truth be told or shall the usual advice be given again? The facts are these: It is extremely difficult to plan a border of any size which shall display a neat, tidy appearance and at the same time shall be in bloom from April until frost. There will be unsightly spots where some perennial has passed its season and where the neighboring sorts have failed to cover the traces of the earlier sort. However, it is possible by planning, care and transplanting to maintain such borders of almost uninterrupted bloom.

Some persons prefer to have an entire border giving an attractive Spring, Summer or Fall effect; others have pretty spots for each season.

There are optimists, however, who have planted the border for an all-the-year-round effect and who fail to notice the bare spots, so charmed are they by the choice flowers which are at any one time in bloom. They are the same persons who do not say "Every Rose has its thorn;" they say "It is remarkable that some thorns bear Roses."

Care should be exercised not to have too many of the early-flower sorts toward the front unless they retain their foliage until Fall. It is better to plant certain rather permanent foliage plants as an edging.

TEXTURE

We pay higher prices for texture in vases, fabrics and paintings than we do for mere color. Texture also plays a large role in flower color; therein lies the charm of one flower over another when colors are alike.

So the Iris enthusiast admires the variety *Flavescens*, but dotes upon *Shekinah*, because of its incomparable texture. The wild flower lover enjoys the shining leaves of the Willow and the furry leaf of the *Hepatica*, but considers the leaf of the Wildginger to be the most attractive of any of our native plants because the surface of this leaf is of incomparable satiny texture. Most Roses have the same form, many are similar in color, but the texture of the Hoosier Beauty Rose transcends that of most varieties.

COLOR

The color arrangements in the garden should be pleasing. Is this not a trite statement? And yet what is pleasing to one is a jar to the taste of another. Rather love flowers and plant a riot of colors than fear to infringe upon good taste by planting sparingly. When the taste improves the plants can be moved.

Color is one of the attributes of objects that adds greatly to our visual enjoyment of them. Forms please us, but a more primitive instinct leads us to appreciate color more than form.

It is a strange fact that most colors are associated in our minds with form. However, blue we conceive without form because we visualize the sky—blue can go on and on without limit. White may be unassociated with a definite shape, inasmuch as snowcapped peaks Winter landscapes and even the sky filled with clouds is within the experience of all. Night which shrouds the earth, gives no limit to black. But think of red, purple, orange or any other color and immediately a form looms to the mind—a red apple, a purple flower or an orange shawl. These colors give us ideas of pattern always.

The artist studies color; he knows his red, his blue and yellow pigment; he takes what is nearly pure color and mixes it at his will. The prism and the crystal break white light into the colors of the rainbow, or the spectrum. These are pure colors, the component parts of white light.

Flower colors are neither pigment colors nor are they spectrum colors. No flower is pure blue, true red nor can we say accurately what color it is. Look today upon any colored flower in your garden, compare it with your conception of a pure color and it will be seen to contain other colors as well.

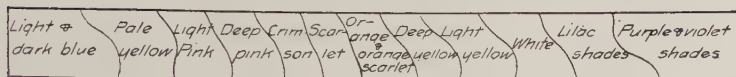
Persons with more refined tastes appreciate colors which are complex; they glory in the fact that color can no more be expressed in words than can fragrance. They look upon color in a flower and call it violet, but red, yellow, blue, orange, green and purple flashes come from that one violet flower, inasmuch as such flowers are not colored as simply as a cheap vase, an inexpensive calico or a shoddy piece of art.

Would that it were easy to give rules for combining flower colors attractively in a garden! But we cannot dogmatically appraise the colors. How can we truthfully say that we hate magenta, or red?

Combine them properly and they are pleasing. Magenta is a purplish rose; it appears muddy when used with salmon pink or clear pink; it does not offend when used with purple or white. Scarlet is a yellow-red and is not at its best when contrasted with crimson, a blue-red. Light tints of color generally please when combined together, but a light tint of one color combined with a dark shade of another is



A few popular hardy flowers make this pathway a thing of beauty



Succession of colors suggested by D. Lumsden

usually employed to the disadvantage of one of these colors. White is the symbol of purity and the color of snow, but when too much is used in the garden, the latter appears Wintery and out of season. So Spirea, or Bridalwreath, when used as commonly as it is throughout our country is less pleasing than any other color. Small spots of orange and yellow are as showy as large clumps of violet or blue.

Read what Wm. Saville says about colors. He was speaking before the Florists' Club of Philadelphia:

"It should be the aim in starting (as you enter the border from either end) to have flowers of light coloring and foliage plants of gray-glaucous or bluish leaf. As one passes to the center the color is allowed to become stronger and stronger, until in the center position we have one strong color vying with another."

W. J. Potter, of the Parks Department, Toronto, once said:

"Color planting is more suitable for large gardens, where the eye rests on the whole, or greater part of the scheme. It also includes the choice and use of two colors or combinations, such as pink and blue (light), cream and purple, golden yellow and deep blue, or orange and medium blue; or a gradual blending down from an intense color, using several intermediate shades. The yellow and orange shades always look well and if separated in good generous blocks, cannot help but be effective. Blocks of white flowers or green ornamental foliage will act as a foil where it is necessary to use strong colors in heavy masses, reds and scarlets for example, that is if both meet the eye at the same time."

Whole books have been written dealing with color in the garden, but these few remarks must suffice. Plan a special color garden if your fancy tells you to do so. In any case, avoid buying mixtures of flower seeds; buy packets of colors which harmonize and make your own mixture. Avoid variegated flowers; they appear muddy in the distance. Study your color combinations for the garden. Combine whatever you admire, but study them, contrasting them, one with the other, until at last you will come to admire certain ones more than others and more than a riot of colors.

Be not discouraged that the garden is difficult to arrange in color harmony; it is only by a realization of this difficulty that you get the true enjoyment of color.

GARDEN OPERATIONS

NOTHING without labor" is the motto of the garden, although it is true that some perennials require but little care. He who loves the garden enough does not think of the labor but remembers only the triumph of having lusty, flowering plants. He prepares his soil properly, realizing that the camouflage of having a good surface soil, but a poor soil beneath, fools persons but not plants. He talks little about the bugs; he sprays them.

PREPARATION OF THE SOIL

Perennials must remain rather permanently in one place and for this reason, if for no other, the soil should be deeply and thoroughly prepared. Usually good soil extends down only about a foot, yet many of our perennials are deep rooting. For example, the leguminous and the mallow plants prefer to strike downward. Most of our plants will suffer less from drought in Midsummer if the roots are in the cool, moisture-laden soil beneath. Therefore, dig the soil out to a depth of 18 to 24 inches and incorporate some well rotted manure into the dead subsoil.

The various members of the Heath family which includes Rhododendrons, Azaleas, Mountain-laurel, Trailing-arbutus, and Andromedas prefer an acid soil. If these plants are to be grown in a limestone region, the soil must be treated to produce an acid condition. Dig out the beds to a good depth and fill with silica sand mixed with acid-producing organic matter, like tanbark or sawdust. Further acidification can be secured by applying aluminum sulphate as needed. Edward Gillette advises frequent watering of the beds with one part of commercial tannic acid to 50 parts of water.

PLANTING

Some say it is best to prepare the border in the Fall, leaving the soil rough and subject to the freezing action during the Winter, after which it may be leveled and planted in the Spring.

Sweeping statements cannot be made about such diverse plants as are here discussed, but it would seem that early Fall planting is

advisable in many regions. There is not as much to be done in the garden in the Fall. The plants, if transferred early enough, will become thoroughly established by Spring and will start into growth earlier and produce stronger root systems which should enable them to withstand drought. In Autumn the soil works more easily than in Spring, and retaining its Summer warmth, induces root action. Another point worthy of consideration is the fact that many times the nurseries are unable to supply us with just what we want if we order too late in Spring, as they frequently are sold out of popular varieties. Late Fall planting is to be avoided because the plants should be thoroughly established before freezing, as resting plants do not take hold of the soil. When the plants are not established they heave from the soil unless mulched.

In the descriptions of the perennials found in this little book the best time for transplanting is usually given. The plants with evergreen foliage are usually best moved in Spring, as are also the late flowering and less hardy sorts.

These plants especially are *not* transplanted in Fall in the Northern States:

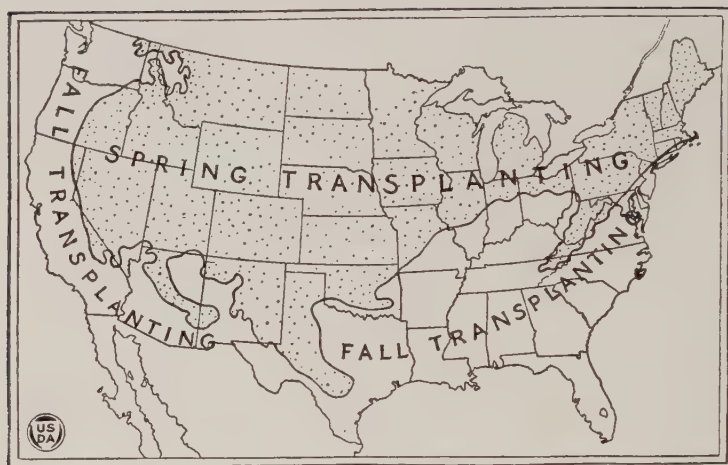
ANEMONE JAPONICA	CHRYSANTHEMUM. Late flowered
ASTER	sorts
CERATOSTIGMA (Plumbago)	HELENIUM (Sneezeweed)
CHRYSANTHEMUM (Shasta Daisy)	MONARDA (Beebalm)

Dr. F. L. Mulford of the United States Department of Agriculture has devised a map which indicates the regions where Fall and Spring transplanting is advised (See page 14). He writes:

"Fall transplanting should be done at least a month or six weeks before freezing weather, but better two or three months before, so that the plants may become established before Winter. In dry countries, especially where there are severe drying winds, the new bed needs to be thoroughly soaked soon after planting and then mulched to retain as much of the moisture as possible through the Winter."

PLANT FOODS

Plants feed from air as well as soil, but it is within our power to improve the soil nourishment only. It is generally agreed that the physical condition of the soil is more important than its actual chemical nature. A soil in good physical condition is well supplied with decayed manure and is fibrous. It is easily worked and is teeming with bacteria which work to release the plant food which most soil contains. The big function of manure added to soil is to give the soil a good texture and assist in releasing its hidden chemical resources. The three main chemicals needed by plants are nitrates, phosphoric acid and potash. These may be applied separately or in combination. They are sold



Map of the United States

Showing by stippling those portions of the country where transplanting should be attempted only in the Spring. In the unstippled areas, marked "Fall transplanting," the Spring and early Summer flowering plants may be moved either in early Fall or Spring while Fall-flowering plants should be moved in the Spring

as complete high test plant foods which serve as a balanced diet of plants. At present there are many good plant foods on the market. Unless these elements are soluble in water they are not available to the plants. Much of the value of fertilizers is to unlock these elements.

NITROGEN FERTILIZERS. Animal manures contain nitrogen and are generally beneficial to soils. Well decayed manure is usually advised because plant roots are frequently injured by contact with fresh manure. Manure used as a Winter mulch may be worked into the soil in the Spring, or manure may be placed in water and the manure water may be applied to the plants.

Nitrate of soda, ammonium sulphate and such nitrate fertilizers are strong drugs for plants. They add nothing to the physical condition of the soil but do supply a large quantity of nitrogen. Nitrogen causes growth and larger flowers. These chemical fertilizers are dissolved in water and applied to plants while they are growing. Too much nitrogen causes excessive growth, delayed flowering and weak-stemmed plants. These chemical nitrogen fertilizers may be applied at the rate of one

teaspoon to a gallon of water to make plants greener, more rapid in growth and to increase the size of the flowers; use for this purpose when the plants come into bud. Do not apply too strong nor get the solution upon the leaves of the plants. Remember that it is a drug and should be used accordingly.

BONEMEAL. Bonemeal is one of the best general fertilizers for flowers because it contains not only nitrogen but phosphorus. It is useful for all sorts of flowers and may be scattered over the soil so that it is white. Cultivate this into the soil and the value of this fertilizer will last through the season. There is no danger in applying too much.

WOOD ASHES. The third great element, potash, is found in abundance in unleached wood ashes. Most soils contain quite enough potash, but if one has some wood ashes it may be used with benefit about the flower garden. A light covering of the soil, hoed in, will be sufficient.

LIME NOT A FERTILIZER. The value of lime to soil is not that it adds plant food, but that it combines with other substances and becomes useful to plants. It is of great value for other reasons as well; it makes heavy soils looser, it makes sandy soils more compact, it sweetens sour soils and it increases the number of bacteria. There are few gardens which have been cultivated for a period of years that would not benefit by an application of lime every three or four years.

CULTIVATION

Perennials usually pay us for care by producing larger blooms borne more continuously throughout the season. Few plants do well in soil which is allowed to bake in a stiff crust at the surface of the soil. It is well to cultivate them with a hoe or small tool in such a way that a loose layer of soil surrounds each plant. Air enters the soil, the roots strike more deeply, the weeds are kept in check and less water need be applied to the plants when there is, what the gardener calls, a dust mulch about the plants.

In lieu of cultivation a mulch of manure, peatmoss, or lawn clippings may be placed around the plants.

WATERING

If the soil is properly prepared and cultivated, water is only needed in the perennial garden during the most severe droughts. Many plants may be encouraged to bloom a second time if they are watered thoroughly and fertilized. Water plants leisurely, giving each clump a good, long drink. Merely wetting the surface soil is injurious to the plants

because it coaxes the roots to the surface soil and makes them susceptible to the hot sun which will parch these feeding roots. Furthermore, the benefits of cultivation are destroyed by daily sprinkling the surface of the soil.

STAKING

The taller and more slender growing plants need stakes. Too commonly we note stakes in greater evidence than plants. Make them inconspicuous by painting them green, and place them in the centers of the clumps so that the growth may appear perfectly natural, not bundled. Lower growing perennials, such as *Achillea The Pearl*, which are apt to sprawl about the garden, are best supported by placing twiggy branches of shrubs and trees among the plants into which the shoots may grow.

No garden is quite as pretty as it should be when the plants need stakes and do not have them or when the method of supporting the plants is artificial in appearance.



Staking perennials. Note the method of tying the heavy cord about the stake first. This insures the support from slipping down

SEED PODS AND WITHERED FLOWERS

The hardest work a plant performs is to produce seed, and so it is ever wise to prevent seeding, thereby continuing the season of bloom. The wise method is to burn the old flowers as they harbor thrips, a minute insect which destroys the beauty of many flowers. Besides this matter of economizing the strength of the plants, gardens going to seed are untidy; they show want of care.

PROTECTION

Four factors are accountable for the Winterkilling of perennials and the main one is not the extreme cold. Many will recall a poem by Robert Frost entitled "Goodbye and Keep Cold." It is addressed to

his young orchard. The ideal protection keeps the soil cold. Obviously, plants are not protected to keep them from freezing. Drying winds are especially detrimental to those which hold their foliage through the Winter. Water standing upon the crown will kill most perennials. The alternate freezing and thawing of the soil will cause much damage, because it causes them to be lifted from the soil. Plants are often more injured in the regions of mild Winters than where the soil becomes covered with snow which remains until Spring. Especially is this true of plants set too late or of those plants having few fibrous roots.

Except when diseases are rampant in the garden, the tops of the plants should not be removed until Spring because they tend to protect the plants by catching the snow. Leaves are frequently used as a protecting material but they are harmful and actually smother the plants. Evergreen plants, Sweet-williams, Hollyhocks and such plants, are easily protected if evergreen boughs are used. Remember that plants need a parasol as much as they do an overcoat. Manure serves as a good protection, but is rather expensive compared to its value. However, it should be well decayed or strawy, not lumpy and compact. It is also advisable to use some corn stalks or tree branches upon the beds; then apply the manure or leaves.

The protection is best applied *after* the ground is frozen. The plants will then remain frozen. A mulch applied too early will cause the perennials to make a soft growth during the warm days of the Fall. Often mice will work into the beds when mulch is applied too early.

Many of the more tender perennials are best removed to coldframes for the Winter. This is especially necessary for some plants growing in the perennial border but which are true rockery subjects. Perennials which are not hardy cannot be made so by any sort of protection.

More perennials are injured by the cold in Spring than are affected by the cold in Winter. It is well to loosen but not remove the mulch on the warm days of early Spring. Take off the mulch when the day of the last killing frost is passed. There is always a freeze following what is apparently Spring-to-stay. Do not think that Summer is nigh just because the Hepaticas have bloomed.

Certain truly hardy perennials need no protection, providing that they are thoroughly established in the soil. In this class should be placed such hardy subjects as:

AQUILEGIA
ASTER
CENTAUREA
COREOPSIS

DELPHINIUM
DICTAMNUS
HOSTA (Funkia)
HELIANTHUS
IRIS

LILY-OF-THE-VALLEY
PEONIES
PHLOX
PHYSOSTEGIA

The following plants are likely to be injured in some gardens and should, therefore, benefit by having some protection:

ALTHAEA (Hollyhock)

ANCHUSA (Bugloss)

ANEMONE (Japanese A.)

ASTILBE

AUBRIETA (Purple Rockcress)

GAILLARDIA (Blanketflower)

HELENIUM (Sneezeweed)

HELIANTHEMUM (Sunrose)

IBERIS (Candytuft)

MONARDA (Beebalm)

OENOTHERA (Evening-primrose)

PENTSTEMON (Bearded-tongue)

PLATYCODON (Balloonflower)

POTENTILLA (Cinquefoil)

PRIMULA (Primrose)

THALICTRUM (Meadowrue)

Still more susceptible to Winter injury, and, therefore, best placed in a coldframe:

BELLIS (English Daisy)

CALLIRHOE (Poppy-mallow)

CAMPANULA MEDIUM (Canterbury-bells)

CENTRANTHUS (Greek-valerian)

CERATOSTIGMA PLUMBAGINOIDES (Larpenle Plumbago)

CHRYSANTHEMUM (Early-flowered sorts)

CHRYSANTHEMUM (Shasta Daisy)

CORTADERIA (Pampasgrass)

DIGITALIS (Foxglove)

GEUM (Avens)

HEUCHERA SANGUINEA (Coralbells)

KNIPHOFIA (Torchlily)

PENTSTEMON GLOXINIODES (Gloxinia Bearded-tongue)

SALVIA FARINACEA (Mealcup Sage)

THALICTRUM DIPTEROCARPUM (Yunnan Meadowrue)



A border cut through an orchard. Colors vie with each other and even divert our attention from the building in the background

CALENDAR FOR PERENNIALS

JANUARY

Read the catalogs.

Plan a perennial border.

In Southern California, sow seeds of *Aquilegia*, *Delphinium*, *Pyrethrum* and other perennials. Plant *Chrysanthemums* and transplant *Pansies*.

In the Northwest, transplant perennials.

FEBRUARY

Go through the rock garden on a mild day and press down the plants which have heaved from the soil.

Divide *Delphiniums* in California.

Plant perennials in South.

Seeds of some rock plants which like freezing can be sown.

Order new plant stakes and get the old ones in condition.

In Southern California sow *Viola cornuta*, *Shasta Daisies* and *Poppies*.

MARCH

Spray soil around *Phlox*, *Peonies* and *Hollyhocks* with bordeaux mixture.

Clean up the garden.

Make cuttings of Hardy *Chrysanthemums*.

Divide the rampant perennials, such as *Goldenglow*, *Gaillardia*, *Lily-of-the-valley*, *Chrysanthemum*, *Shasta Daisies*, *Sweet-williams*, *Phlox*, *Torchlilies* and *Salvia*.

Sow seed of *Forget-me-not*, *Primula*, *Salvia farinacea*, *Dianthus*, *Alyssum*, *Aquilegia*, *Arabis*, *Aubrieta*, *Iberis*, *Heuchera*, *Cheiranthus allioni*.

In rock garden sift soil around plants that have heaved. Remove dead leaves from juicy leaved plants, also the woolly sorts.

If *Delphinium* seed is sown in Spring, soak it in hot water.

Do not be too hasty to remove protection.

In transplanting young *Primulas*, *Saxifrages*, *Anemones* and other rockery perennials, afford some shade for them.

Cut back *Alyssums*, *Saponaria*, *Hypericum*.

Plant *Violas*, *Arabis*, *Siberian Wallflowers* and *Phlox divaricata* as ground covers for bulb beds.

Feed the perennials, using a well-balanced plant food.

APRIL

Make Delphinium cuttings.

Take off the Winter protection.

Spray with bordeaux mixture.

Make good use of Sedums; tuck bits here and there for ground covers.

Most of the perennials can be divided.

Remember that Hibiscus, Plumbago, Anemones and Platycodon are slow to appear. Do not disturb them in working in the border.

Label everything.

Coldframes will need air.

Transplant Pansies.

Plant some wild flowers.

Sow seeds of biennials, Canterbury-bells, Foxgloves, Sweet-williams.

Sow seeds of perennials.

In California garden slugs are plentiful now. Use a poison bait.

MAY

Remove the diseased buds of Peonies.

Disbud Peonies for exhibition blooms.

Stake Chrysanthemums, Delphiniums, Hardy Asters, Boltonia.

Start biennials and perennials from seed.

Keep spraying Hollyhocks, Peonies and Phlox. (See March.)

Kill the weeds.

Use readily available food upon Peonies, Iris and other perennials coming into bloom.

Plant the rockery.

This is the last chance to transplant the rapid growing perennials.

Cut off tops of Goldentuft, Helianthemum and Forget-me-nots.

JUNE

To prepare for a second crop of bloom, cut back perennials which have bloomed.

Make cuttings of *Phlox subulata*, Cerastium, Iberis, Arenarias.

Stake before storms damage.

Sow seeds of perennials.

Water newly transplanted perennials.

Keep down weeds.

Pinch back Chrysanthemum plants to make them branch.

Cut off seeds of Delphinium, removing at least one-third of the old stem.

In hot, dry sections mulch the perennials with peatmoss or grass clippings.

JULY

Transplant the overcrowded Iris and any that have the rot.

Don't forget to pinch Chrysanthemums.

Sow Delphinium seed as soon as it is ripe.

Water Phlox.

Cut back perennials which have finished bloom.

Sow perennial seed.

Spray with water and Volck for red spider.

Cultivate frequently to avoid the evil effects of drought.

AUGUST

Sow seeds of *Bellis perennis*, Hollyhocks, Delphinium.

The last month to sow the general lot of perennial seeds.

Transplant seedlings of seeds sown in May and June.

Spray Chrysanthemums with nicotine for plant lice.

Spray with water for red spider.

Transplant and make root cuttings of Oriental Poppies. (See page 212.)

Stake the Chrysanthemums.

Remove the developing seed.

Continue to cultivate everything.

Transplant Iris.

Cut back Hollyhocks to prevent the seeds from scattering all over the garden.

Go over rock garden. Some of the rampant rascals will need to be cut back to give space to the rarer gems.

SEPTEMBER

Transplant Peonies.

Spray for aphids on Chrysanthemums with nicotine.

Dig and throw away any Phlox which is poor.

Divide most perennials and reset as a general house cleaning of the border. (See page 28 as exceptions to this rule.)

Transplant perennial seedlings from seed bed to frames or to permanent place in the border.

Your Violas have self-sown. Transplant the seedlings to the border or rockery.

If you are planning a new border, it will be wise to prepare the soil and let it settle until next Spring before planting.

Now is the time to get rid of the perennials which you consider weedy.

Plunge the spade in the soil near plants of Canterbury-bells and Foxgloves. This breaks the root system and puts them to rest, resulting in greater hardiness.

OCTOBER

In New Orleans sow English Daisy and Coreopsis.

Gather every leaf and stem of Peonies and Hollyhocks. Burn them if you are troubled with bud rot.

Cover Chrysanthemums to protect from frost, or dig plants and put in boxes or jars for indoor bloom.

Give border a good cleaning.

Where Torchlilies are not reliably hardy, lift and store them.

NOVEMBER

In South sow seeds of Carnation, Campanula, Foxglove, Anchusa, Delphinium, Lupines and Pentstemon.

In South plant and divide perennials.

After the ground is frozen, protect tenderer subjects with branches and garden trash.

Do not completely cover the evergreen perennials.

In Northwest make cuttings of Lavender, Pentstemons, and other perennials. Divide Primroses.

Spade vacant spots in border and leave them rough for the Winter.

DECEMBER

Less to do in perennial garden than any other month.

Protect plants if you have not already done so.

See that the protection you used last month has not become matted, with the consequent danger of smothering the plants.

Give your friends choice Delphinium seeds for Christmas presents.

Read books on perennials.

Clean and oil your garden tools.

In South transplant perennials.

INSECTS AND DISEASES

PERNICIOUS, vicious, obnoxious and thoroughly bad are the pests and diseases of our perennial garden. The control of insects and diseases has been mentioned under the plants affected, but here must be stated some general facts and a few standard formulae given for insecticides and fungicides.

INSECTS

Two big groups of insects bother our flowers: Those which chew holes in the leaves, flowers and stems—the caterpillars, “worms,” slugs, cutworms—for such insects stomach poisons are used. The second class will include those which merely pierce through the tissues of plants and suck the juices from them—aphides, lice, leaf hoppers—for these contact insecticides are used. The insect must actually be hit, in which case it is smothered.

An insecticide which kills chewing mouth-part insects does not necessarily kill those with sucking mouth-parts.

STOMACH POISONS FOR INSECTS WHICH EAT

Arsenate of Lead. This is the best one. It comes in powder and paste form and is used at the rate of 1 oz. of paste or $\frac{1}{2}$ oz. of powder to 1 gal. of water. Apply as a spray. Soap may be added to help the spray to stick to the plants. The powder may be dusted upon the infested plants.

Poison Bait. For cutworms, grasshoppers and insects which are difficult to locate, concoct a delicious death bait for them. Mix about a teaspoon of arsenate of lead, a tablespoon of molasses and a little water to each handful of wheat bran. Place a tablespoonful here and there about the garden just before dark to kill cutworms. There is no danger of killing birds with the bran if it is placed under a shingle or a piece of wood where they cannot reach it.

CONTACT INSECTICIDES FOR INSECTS WHICH SUCK

Nicotine Extract. Nicotine is death to the Rose lice or any other lice or sucking insects. It is purchased in a concentrated form and

should be used according to the directions upon the container in which it is purchased. Soap added to the mixture will help it to adhere to the bodies of the insects.

Pyrethrum Extract. For many years Pyrethrum or insect powder has been an insecticide, but it needed to be absolutely fresh to be effective. Recently chemists have devised a means of making concentrated solutions of the active principles of pyrethrum and these extracts are now sold under many trade names.

DISEASES

Plants are diseased when their normal activities are not functioning properly or when they are the prey to fungi and harmful bacteria. The plants most crowded and not growing properly are most seriously affected. Sunlight and proper air circulation are great preventives. Wet seasons favor diseases. Diseases are more easily prevented than cured. It must be remembered that in killing a disease we are confronted with the problem of killing one plant—the disease—without killing the plant affected with this disease. Preventing disease consists in refraining from planting any plant in the same spot year after year; it consists further in the destruction by burning of any part of the diseased plant; together with proper spraying. Spraying with a fungicide may kill the fungus, but it never cures the leaf, flower or stem affected. Its value lies in preventing the spread of the disease to other parts of the plant. The control of fungous diseases depends generally upon the use of copper and sulphur.

FUNGICIDES

Powdered, or Flowers of Sulphur. This is useful in controlling mildews, which are surface diseases characterized by a whitish powdery appearance of the plants. If powdered sulphur is placed in a piece of cheesecloth and sifted over the plants early in the morning when the dew is on the plants, mildew can be checked from spreading. The use of sulphur is more effective when the sun comes out on the day of application, because the heat of the sun vaporizes the sulphur. It may be needless to remark that the sulphur in no case should be burned. Burning sulphur is most destructive of plant and animal life.

Bordeaux Mixture. Useful for Peony bud rot, Phlox mildew, Hollyhock rust and many other diseases of perennials. It has the bad fault of leaving a bluish white appearance upon the plants. Its use is therefore confined to the early stages of growth and may be sprayed upon the young plants in March even before growth starts and weekly thereafter until they become unsightly. Some persons believe, however,

that a slightly white plant is better than a diseased or dead one and always spray with Bordeaux mixture.

Bordeaux mixture may be purchased already prepared. It is most easily handled. The amateur who makes his own loses rather than gains. To make this fungicide we use 1 oz. copper sulphate (blue stone) and a little over 1 oz. of hydrated lime to 1 gal. of water. Dissolve each, the lime and the copper sulphate, in a quart of water before mixing the two. It is better to have too much lime than too little.

Ammoniacal Copper Carbonate. This is used for the same purpose as Bordeaux mixture but is not quite as effective. It does not leave a precipitate upon the foliage. To make a small quantity, dissolve 5 drams of copper carbonate in as much ammonia as is needed (usually one pint). This stock solution, if bottled, will keep. It is sufficient to make 10 gals. of spray when water is added.



High among the skyscrapers of New York, the "Gardens of the Nations" in Radio City have their trees, shrubs and perennials to gladden the eyes of the nature-hungry city dwellers

PROPAGATION

ONE of the most fascinating things of a garden is the propagation of our favorites, whereby we may increase the number of plants to be set in other parts of the garden. We always require a few extra plants to fill in bare spots and we must have some young plants to give to our flower loving friends. It is well to devote some spot in the garden, out of view, where plants may be propagated and raised to a size so that they can tolerate competition with the large established plants.

Perennials may be easily propagated from seed, division, cuttings and layers.

SOWING SEED

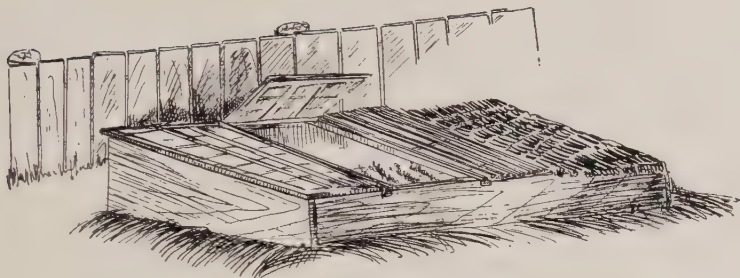
Annuals are raised from seed because it is the simplest method of raising the plants, and for the same reason some perennials are also grown from seed. However, many perennials are not propagated by this method because they are hybrid in nature and do not come true to the variety. Peonies, Irises, Phloxes and scores of others are failures when grown from seed, except for those who are interested in seeing just what the result might be. Furthermore, it takes a long time to get some perennials to bloom when raised from seed.

Nevertheless, for the scores which are not good, there are hundreds of perennials which are highly successful.

TIME TO SOW

In order that we may have large plants for our gardens, the seeds are best sown in May, June or July, unless otherwise noted in subsequent notes under the alphabetical list. Certain plants make little growth when sown late; certain others germinate slowly. Gaillardias, Shasta Daisies, Chinese Larkspur, Platycodon, Hibiscus, Iceland Poppy, Lychnis and some other perennials bloom the first year from seed if sown in early Spring; most other perennials do not.

Forget-me-nots, English Daisies, Hollyhocks, Oriental Poppies, Sweet-williams and Pansies are best sown in August, otherwise the plants are likely to become too large for convenient handling in the Spring.



Perennials in a coldframe

THE WAY TO SOW

Those persons who would raise perennials from seed should have a coldframe. The well prepared soil in the frame should be several inches above the soil outside the frame so that the frame may have perfect drainage. Heavy clay soil should have sand or peatmoss added to it. These materials are porous, retain moisture, and are free from weeds. After sowing the seed thinly in rows 4 to 6 inches apart, it should be covered with sand, leafmold or fine soil, the depth of covering to depend upon the size of the seed. Fine seed should be covered with a piece of burlap but not soil. Large seeds may be safely covered twice their diameter. Water the frame with a sprinkling can. Cover the frame with the sash and shade it with cloth or whitewash. Raise the sash a few inches when the sun is bright. According to the species the seed will germinate in from four days to several months.

THE CARE OF SEEDLINGS

Many of the seedlings will be very small but if they are crowded they should be transplanted when they have produced a couple of leaves. Allowing the sash to remain closed during hot weather, keeping them shaded on dull days, and letting the seedlings stand too closely will result in damping-off, a disease very destructive to young seedlings. The smaller sort of seedlings and those of the less hardy species of plants should be transplanted to another part of the frame so that they stand 3 inches to 5 inches apart. The seedlings which are large, rapid growing and hardy may be transplanted to the open soil where they remain for the Winter, providing this is done before September.

The hot days of Summer will necessitate frequent watering of the seedlings. Let the watering be thorough.

DIVIDING PERENNIALS

Usually perennials are more easily propagated by division than by any other means. This is true of certain of the more rampant growers, especially the hardy Asters, the perennial Sunflowers, Heleniums, Achilleas, Boltonias, Hardy Chrysanthemums, Shasta Daisies and Sweet-williams. Certain other perennials are impatient of being moved and seem to thrive for years without being disturbed; namely, Peonies, Gypsophila, Bleedingheart, Lupinus, Papaver, Gasplant, Asclepias, Adonis, and *Anemone japonica*. On the other hand, Phlox, Iris, Campanula, Geum, Lychnis, Hosta, Viola, Artemisia, Columbines, Delphiniums and such other medium-rapid producers should be divided every three or four years, depending upon the appearance of the clumps. Transplant them when the crowns become woody or hollow and the flowers smaller.

Generally speaking, the early flowered sorts should be divided in August and the later blooming plants in the early Spring. It may be advisable to refer to Planting Perennials, page 12. Because the new roots of Irises and Peonies are produced in early Fall, it seems wise to transplant these two old favorites during July or August.

Delphiniums require careful manipulation when they are divided, for each division should have a good piece of crown and some roots. Difficult subjects should have the soil washed from the roots, so that the cuts may be made in the proper places.

In dividing perennials it is not necessary that they be separated into extremely small pieces, otherwise their garden value will be destroyed. However, small single-eye divisions may be set about a foot apart to form a good sized clump, in which case the plants usually present the same appearance as before, except that the flowers will be larger.

LAYERS

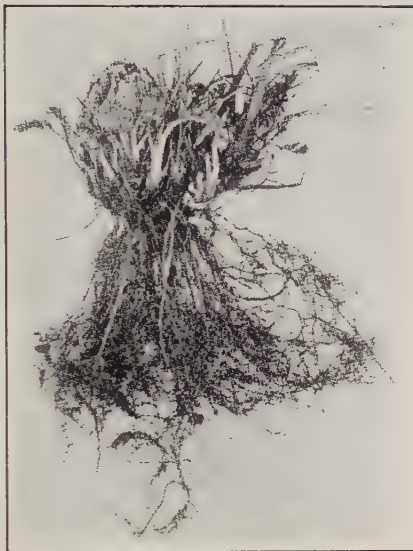
A modification of dividing perennials is to prepare them for division by covering the plants with sandy soil or clean sand. It is not necessary to bury the plants, but merely fill in between the spaces where the branches have become long, trailing and leggy. We have in mind especially the Grass Pinks, Sweet-william, *Campanula carpatica* and Arabis.

CUTTINGS

Few amateur gardeners avail themselves of a method of increasing perennials by cuttings. When certain of the plants are 6 inches or 8 inches tall, the tops may be cut out and placed in a box of sand to

How to Divide Perennials

A pictorial demonstration of a timely process, showing how a clump of Pyrethrum should be increased to eight plants. Reproduced from Bulletin 170 of the North Dakota Agricultural College with the permission and cooperation of W. C. Palmer, Director of Extension. To the right, before division; below, after division



root. Under a Grape vine or a tree is an ideal location for such a box. Cutting back the plants in this way is usually not detrimental to them but causes branching. Care need be exercised that there are several eyes below the cut so that the parent plant can continue its growth. Some of the more difficult sorts should be covered with a fruit jar or glass tumbler so that the air can be confined. The easiest sorts that may be grown in this way are:

ARABIS

ASCLEPIAS

CERASTIUM

CHRYSANTHEMUM

CLEMATIS

DAHLIA

DELPHINIUM

HELENIUM

HOLLYHOCK

IBERIS

LOBELIA

LYTHRUM

PERENNIAL SUNFLOWER

PHLOX

PINKS

POTENTILLA



A shaded walk that seems far from the world of bustle yet it is in the middle of a city. Here Virginia Bluebells have spread to form huge clumps of soft blue flowers

FOR SHADY PLACES

IN every garden there is some shady spot in which we try to grow flowers. Lists might be suggested which would include certain plants which prefer shade, or those which tolerate shade, or those which prefer shade but an abundance of moisture, or those which require sun in early Spring, but which may be shaded later in the year by surrounding plants which grow and overtop these Spring flowers.

It must be noted, however, that few plants will grow in dense shade; sun for a part of the day seems necessary for obtaining blooms.

Usually shade is accompanied by poor, very dry soil, due to the presence of trees which drink up every drop of available moisture.



Plantainlilies about a pool. These plants are especially attractive in shady places because of their ample foliage and attractive flowers (See page 179)

Beech, Elm, Maple and other surface-rooting trees are the worst offenders. Oak and Hickory roots go deeper and there is usually less trouble in growing plants beneath them. Because we are laboring under these difficulties, it is wise to remove some of the surface roots and prepare the soil thoroughly.

GARDEN FLOWERS FOR SHADY PLACES

*Dry soil.

†Average moist soil

‡Boggy, very moist soil.

oPartial shade.

xGround cover in rough places.

xxGood, refined ground cover.

aAcid soil (see page 20)

-Spring flowering native plants, which deserve a place in the garden.

‡oANEMONE, JAPANESE (*Anemone japonica*). White, pink.

†*oASTER, HARDY (*Aster*, various). Purple, white.

‡oBALLOONFLOWER, CHINESE (*Platycodon grandiflorum*). Blue, white.

‡BEEBALM (*Monarda*, various). Scarlet, purple.

*o-BLACK-EYED-SUSAN (*Rudbeckia*, several). Yellow, dark center.

‡oBLEEDINGHEART (*Dicentra eximia* and *spectabilis*). Carmine.

*xxBUGLE (*Ajuga*, various). Purple, pink.

‡oBUGLOSS (*Anchusa italica*). Deep blue.

*oCANDYTUFT (*Iberis sempervirens*). White.

*-CARDINALFLOWER (*Lobelia cardinalis*). Cardinal.

*-COLUMBINE (*Aquilegia*, various). Various.

*oCRANESBILL (*Geranium sanguineum*). Rosy purple.

*CORALBELLS (*Heuchera sanguinea*). Coral, white.

‡oCOWSLIP, ENGLISH (*Primula*, various). Various.

*oDAYLILY, LEMON (*Hemerocallis flava*). Lemon.

*o-EVENING-PRIMROSE, MISSOURI (*Oenothera missouriensis*). Yellow.

‡-FORGET-ME-NOT (*Myosotis palustris*). Light blue.

‡oFOXGLOVE (*Digitalis purpurea*). Lavender rose.

‡oGASPLANT (*Dictamnus albus*). Rosy purple, white.

*‡oGAYFEATHER, CATTAIL (*Liatris pycnostachya*). Rosy purple.

*GLOBEFLOWER (*Trollius europaeus*). Golden yellow.

*GOLDENROD (*Solidago caesia* and others). Yellow.

*xxGOUTWEED (*Aegopodium*). Variegated leaves.

† or *-HAREBELL (*Campanula rotundifolia*). Blue.

‡-JOE-PYE-WEED (*Eupatorium purpureum*). Rosy purple.

‡xxLILY-OF-THE-VALLEY (*Convallaria majalis*). White.

‡-LOOSESTRIPE, PURPLE (*Lythrum salicaria*). Purple.

‡oMALTESE CROSS (*Lychnis chalcidonica*). Scarlet.

‡*-MEADOWRUE (*Thalictrum*, various). Purplish white.

‡MONKSHOOD (*Aconitum*, various). Violet, yellow, white.

xx†-MOSS, PHLOX (*Phlox subulata*). Rosy lavender.

‡oPANSY (*Viola tricolor*). Various.

‡oPEA, PERENNIAL (*Lathyrus latifolius*). Rose, white.

*oPHEASANTEYE (*Adonis*, various). Yellow.

‡oPLANTAINLILY (*Hosta* or *Funkia subcordata* and others). Purple, white.

‡oROSE CAMPION (*Lychnis coronaria*). Bright rose.

- †¶o ROSEMALLOW (*Hibiscus moscheutos*). Various.
- †o ST. JOHNSWORT (*Hypericum*, various). Yellow.
- *xx SPEEDWELL (*Veronica rupestris*). Violet.
- *SPIREA (*Spiraea aruncus*). White.
- *o SPIREA (*Spiraea palmata*). Crimson.
- *xx SPURGE, MOUNTAIN (*Pachysandra terminalis*). White.
- xx†o STONECROP (*Sedum*, various). Yellow, pink, white.
- †-SWEET-WILLIAM, WILD (*Phlox divaricata*). Lavender.
- †o TORCHLILY (*Kniphofia aloides*). Bright orange scarlet.
- o-TRILLIUM (*Trillium*, various). White, red.
- o†-VIOLET (*Viola*, various). Purple, yellow, white.
- †o VIRGINIA BLUEBELLS (*Mertensia virginica*). White.
- †o WOODRUFF, SWEET (*Asperula odorata*). White.

SPRING WILD FLOWERS

A characteristic of the once wooded areas of our country is the unending display of Spring flowers. Some persons have wondered why we have many more wild Spring flowers than Summer blooms. These dainty gems must hasten to produce their blossoms before the trees



Trilliums are such attractive flowers that they are fast disappearing from our woods because thoughtless persons pick them

overhead shade them too much. Most of this class of plants do not retain their foliage through the season and actually disappear from view in June or July.

Faults they have but the fleeting character of their display is a charm rather than a fault.

CULTIVATION OF WILD FLOWERS

If space allows, wild flowers are of unusual charm in the home grounds. Many sorts have short blooming seasons. They often die down to the soil and the foliage effect is not lasting. This is especially true of the Spring flowers. Rather than try to dig these plants from the wild, it is frequently wiser to order the plants from some specialist, inasmuch as plants purchased from these commercial concerns will often be better rooted. If quantities are wanted, it is cheaper to buy plants than to dig them from the woods. Surely a hundred plants would cost less than the automobile trip and the time.

In planting any of these flowers study the conditions under which they grow naturally; the nearer you can imitate these conditions, the greater chance of success.

Most of the forest flowers will require a quantity of leafmold, whereas the prairie and meadow flowers require but ordinary good soil. Transplant in earliest Spring or else wait until September or November. Severely cut back plants set at any other season. Plants collected may usually have the soil shaken from the roots after which they are wrapped in damp moss.

WILD FLOWERS

Following is a list of Spring blooming native plants which require the sun in Spring but which will tolerate shade in Summer. Excellent for naturalizing:

- | | |
|------------------------|--------------------------------|
| *Dry soil. | xGround cover in rough places. |
| †Average moist soil. | xxGood, refined ground cover. |
| ‡Bog, very moist soil. | aAcid soil. |
| oPartial shade. | |

†ANEMONE, WOOD.....	<i>Anemone quinquefolia</i>
BANEERRY.....	<i>Actaea rubra</i> and <i>alba</i>
†BELLWORT, MERRYBELLS.....	<i>Uvularia grandiflora</i>
a†BISHOPSCAP, COMMON.....	<i>Mitella diphylla</i>
†xxoBLOODROOT.....	<i>Sanguinaria canadensis</i>
a†BLUEBEAD.....	<i>Clintonia borealis</i>
†BLUE-EYED-GRASS.....	<i>Sisyrinchium angustifolium</i>
†BLUET.....	<i>Houstonia caerulea</i>
aBUNCHBERRY.....	<i>Cornus canadensis</i>
†COHOSH, BLUE.....	<i>Caulophyllum thalictroides</i>
x†COLTSFOOT, COMMON.....	<i>Tussilago farfara</i>
CRINKLEROOT.....	<i>Dentaria diphylla</i>



Tiarella cordifolia, the Foamflower

a	CROWBERRY.....	<i>Empetrum nigrum</i>
a	DALIBARDA.....	<i>Dalibarda repens</i>
a†	DUTCHMANS-BREECHES.....	<i>Dicentra cucullaria</i>
†	FALSE SOLOMONSEAL.....	<i>Smilacina racemosa</i>
FERNS:		
†	CHRISTMAS FERN.....	<i>Aspidium acrostichoides</i>
a†	CINNAMON FERN.....	<i>Osmunda cinnamomea</i>
a†	HARTFORD FERN.....	<i>Lygodium palmatum</i>
a*	INTERRUPTED FERN.....	<i>Osmunda claytoniana</i>
a†	LADY FERN.....	<i>Asplenium filixfemina</i>
a†	MAIDENHAIR FERN, AMERICAN.....	<i>Adiantum pedatum</i>
*	POLYPODY, COMMON.....	<i>Polypodium vulgare</i>
a†¶	ROYAL FERN.....	<i>Osmunda regalis</i>
a*	SENSITIVE FERN.....	<i>Onoclea sensibilis</i>
*	SPLEENWORT, EBONY.....	<i>Asplenium platyneuron</i>
¶a	WALKING FERN.....	<i>Camptosorus rhizophyllus</i>
	FOAMFLOWER, ALLEGHENY.....	<i>Tiarella cordifolia</i>
a	GALAX.....	<i>Galax aphylla</i>

o*	GERANIUM, WILD.....	<i>Geranium maculatum</i>
*	GOLDEYE-GRASS (Stargrass).....	<i>Hypoxis hirsuta</i>
a	GOLDTHREAD.....	<i>Coptis trifolia</i>
a	GRASS-OF-PARNASSUS.....	<i>Parnassia caroliniana</i>
†x	GROUND-IVY.....	<i>Nepeta glechoma</i>
a†	HEPATICA, ROUNDOLOBE.....	<i>Hepatica triloba</i>
a†	IRIS, VERNAL.....	<i>Iris verna</i>
†	JACK-IN-THE-PULPIT.....	<i>Arisaema triphyllum</i>
o†	JACOBS-LADDER.....	<i>Polemonium reptans</i>
a†	LILY-OF-THE-VALLEY, WILD.....	<i>Mianthemum canadense</i>
a*	LUPINE, SUNDIAL.....	<i>Lupinus perennis</i>
¶	MARSHMARIGOLD.....	<i>Caltha palustris</i>
	MAYAPPLE, COMMON.....	<i>Podophyllum peltatum</i>
x¶†	MONEYWORT.....	<i>Lysimachia nummularia</i>
	OCONEE-BELLS.....	<i>Shortia galacifolia</i>
a†	ORCHIDS:	
	ARETHUSA.....	<i>Arethusa bulbosa</i>
	GRASS-PINK ORCHID.....	<i>Calopogon pulchellus</i>
	LADIES-TRESSES, NODDING.....	<i>Spiranthes cernua</i>
	LADYSLIPPER, PINK.....	<i>Cypripedium acaule</i>
	“ SMALL, YELLOW.....	<i>Cypripedium parviflorum</i>
	“ COMMON YELLOW.....	<i>Cypripedium pubescens</i>
	“ WHITE.....	<i>Cypripedium candidum</i>
	ORCHIS, SHOWY.....	<i>Orchis spectabilis</i>
ax	PARTRIDGEBERRY.....	<i>Mitchella repens</i>
a	PEATPINK.....	<i>Silene pennsylvanica</i>
†xx	PERIWINKLE, COMMON.....	<i>Vinca minor</i>
ax	PIPSISSEWA, COMMON.....	<i>Chimaphila umbellata</i>
	POLYGALA, FRINGED.....	<i>Polygala paucifolia</i>
	RATTLESNAKE-PLANTAIN.....	<i>Goodyera pubescens</i>
†	RUE-ANEMONE.....	<i>Anemonella thalictroides</i>
a	SANDMYRTLE, BOX.....	<i>Leiophyllum buxifolium</i>
*	SAXIFRAGE, VIRGINIA.....	<i>Saxifraga virginiana</i>
a	SHINLEAF.....	<i>Pyrola</i> , various.
a	SHINLEAF, ONEFLOWER.....	<i>Moneses uniflora</i>
†o	SHOOTINGSTAR, COMMON.....	<i>Dodecatheon meadia</i>
	SOLOMONSEAL, SMALL.....	<i>Polygonatum biflorum</i>
o¶	SPIDERWORT, VIRGINIA.....	<i>Tradescantia virginiana</i>
a†	SPRINGBEAUTY, VIRGINIA.....	<i>Claytonia virginica</i>
†	SQUIRRELCORN.....	<i>Dicentra canadensis</i>
a	STARFLOWER, AMERICAN.....	<i>Trientalis americana</i>
a*	TRILLIUM.....	<i>Trillium</i> , various
a†	TROUTLILY, COMMON.....	<i>Erythronium americanum</i>
*¶	TURTLEHEAD, WHITE.....	<i>Chelone glabra</i>
a	TWINFLOWER, AMERICAN.....	<i>Linnaea borealis, americana</i>
†	TWINLEAF.....	<i>Jeffersonia diphylla</i>
†	VIOLET.....	<i>Viola</i> , various
oxx†	WATERLEAF.....	<i>Hydrophyllum</i> , various
a†	WILDGINGER, CANADA.....	<i>Asarum canadense</i>
	WINDFLOWER.....	<i>Anemone</i> , various
a	WINTERGREEN.....	<i>Gaultheria procumbens</i>
a	WOODBETONY, EARLY.....	<i>Pedicularis canadensis</i>

HARDY FERNS

Almost everybody has a spot in the garden around the home which is so shady that very few plants will grow there and consequently these spots are bare eyesores. Have you ever taken a walk through dense, cool green woods and admired the wealth of ferns growing there so luxuriantly, and wished that you could have them around your own home to lend their quiet and cool atmosphere? Most of these ferns can be grown easily if one is willing to give a little attention to their care.

USES. Since most of these ferns require a shady and moist situation, they can be massed along shady, woodland paths, at the edges of ponds or along the sides of streams. Many are good for planting on the north side of houses and as edges for borders. The small ones are almost invaluable for the rock garden or near small artificial waterfalls. In the ordinary garden very pretty effects are gained by planting the early flowering bulbous plants among them, because the fronds of the ferns begin to unfurl very early in Spring. Collections of hardy ferns are extremely interesting. Many of the sorts are good for cutting during the Summer.

CULTURE. Very few of these ferns will grow in sunny situations. Try to imitate nature when planting them in your gardens. Shady or semi-shady places are best. Plant underneath trees and around tall



A ferny walk in a shaded place

TABLE OF FERNS, COMMONLY NATIVE OR WORTHY OF CULTIVATION
(See illustration on opposite page)

Scientific Name	Common Name	Height (In Inches)	Soil Preferred	Sun or Shade	Remarks
<i>Adiantum pedatum</i>	Maidenhair Fern.....	8-20	Moist, neutral.....	Shade.....	Keep well drained but medium moist. Buy plants. No. 9a, 9b.
<i>Aspidium</i> (See <i>Dryopteris</i>)					
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort.	4-8	Rather dry.....	Shade.....	Needs moist atmosphere. Evergreen. Plant shallow.
<i>Athyrium</i> (<i>Asplenium</i>)					
<i>angustifolium</i>	Narrowleaf Spleenwort..	24-36	Neutral as to acidity.....	Shade.....	Use good soil for good growth.
<i>flixifemina</i>	Lady Fern.....	24-36	Not particular.....	Sun or shade.....	Yellow-green leaves. Stems pinkish in Spring.
<i>Botrychium</i>	Grapefern.....	12	Moist, subacid.....	Sun.....	Strange fruiting habit. See No. 3a, b, c.
<i>Camptosorus rhizophyllus</i> ..	Walking Fern.....	Creeping	Moist rocks.....	Dense shade.....	Rare. Found on limestone rocks.
<i>Cystopteris bulbifera</i>	Bladderfern.....	12-24	Moderately moist, said to like lime.....	Shade.....	Very dainty. Produces bulbs on leaves No. 13a, 13b.
<i>Dennstedtia punctilobula</i>	Hay-scented Fern.....	25-30	Not particular.....	Sun.....	Forms tough sod of roots.
<i>Dicksonia</i> (See <i>Dennstedtia</i>)					
<i>Dryopteris marginalis</i>	Leather Woodfern.....	12-30	Not particular.....	Shade.....	Evergreen. In planting do not bury the rootstock.
<i>spinulosa</i>	Toothed Woodfern.....	12-36	Not particular.....	Shade.....	Lacy fronds. Commonly used by florists.
<i>Lygodium palmatum</i>	Hartford Fern.....	Climbs to 36	Moist, acid.....	Shade.....	Water and keep mulched. No. 2.
<i>Onoclea sensibilis</i>	Sensitive Fern.....	6-24	Even dry.....	Sun.....	Spreads rapidly. No. 1a and 1b.
<i>struthiopteris</i>	Ostrich Fern.....	72	Moist.....	Shade.....	Do not plant deeply.
<i>Osmunda cinnamomea</i>	Cinnamon Fern.....	48-72	Wet.....	Sun.....	Characterized by black exposed root stock. No. 7a.
<i>claytoniana</i>	Interrupted Fern.....	36	Any.....	Sun or shade.....	Successfully cultivated with ease. No. 6a, 6b, 6c.
<i>regalis</i>	Royal Fern.....	24-72	At least moist or wet.....	Partial shade.....	Don't plant deeply. No. 8a, 8b.
<i>Pellaea atropurpurea</i>	Purple Cliffbrake.....	4-20	Not particular.....	Will grow in sun.....	Rather rare. Plant shallow. Rock garden. No. 4a, b.
<i>Polypodium vulgare</i>	Common Polypody.....	4-15	Not particular.....	Sun or shade.....	Forms dense mats on cliffs. No. 5a, b.
<i>Polystichum acrostichoides</i>	Christmas Fern.....	8-30	Not particular.....	Sun or shade.....	Evergreen. Common. Easy to grow. No. 12a, 12b, 12c.
<i>Pteridium aquilinum</i>	Bracken.....	12-24	Moderately acid.....	Sun or shade.....	Often becomes weed. Plant deeply. No. 10a, 10b, 10c.
<i>Pteris</i> (See <i>Pteridium</i>)					
<i>Woodsia obtusa</i>	Common Woodsia.....	6 12	Not wet.....	Shade.....	Plant in front of other ferns.
<i>Woodwardia</i>					
<i>areolata</i> (<i>angustifolia</i>).....	Narrowleaf Chainfern.....	12	Acid.....	Partial shade.....	Buy plants. Rare. No. 11a, 11b.
<i>virginica</i>	Virginia Chainfern.....	24-36	Wet.....	Partial shade.....	Can be grown in garden soil.



Fronds of various kinds of ferns

1. Sensitive Fern—(a) frond; (b) spore bearing frond.
2. Hartford or Climbing Fern.
3. Grape Fern—(a) frond; (b) modified frond producing spore cases; (c) detail of spore cases.
4. Cliffbrake—(a) frond; (b) spore cases like pockets above veins.
5. Common Polypody—(a) frond; (b) large fruiting dots.
6. Interrupted Fern—(a) spore bearing pinnae (leaflets) confined to a few in middle of frond; (b) and (c) details of spore cases.
7. (a) Cinnamon Fern—Fertile frond.
8. Royal Fern (a) frond; with (b) modified pinnae at tip producing spores.
9. Maidenhair Fern (a) Pinnae; (b) detail showing spores beneath the folded margins of pinnae.
10. Bracken—(a) Entire frond; (b) detail of pinnae; (c) spore bearing folded margins of a pinnule.
11. Chainfern—(a) Pinnae; (b) Spore areas in chains.
12. Christmas Fern (a) frond; (b) spore cluster; (c) detail of spore clusters.
13. Bladderfern—(a) frond; (b) fruit dots.

shrubbery, where the plants will be more or less protected from the sun and hot, dry winds. Good drainage is absolutely necessary and it is advisable to raise the fern bed 3 inches or 4 inches in order to insure this. Plenty of water should be supplied during the dry Summer months. In preparing the soil, dig as deeply as the roots of the trees will allow. If the soil is clayey or poor, use plenty of decayed leaves, peat, manure and other loose materials. The soil should be very fine, light and porous. When planting the small ferns in the rockery almost pure leafmold can be used. None of the ferns should be set deeply in the soil, most of them requiring about an inch of soil covering. Those which grow from crowns should be set on the soil so that the crown is not covered. Ample room should be left between the plants because they spread so readily. The Royal or Flowering Fern can be grown in 2 inches or 3 inches of still water or in very moist places. The Cinnamon Fern is usually found in mucky soils. The Gossamer Fern is one of the best to grow along walks for it will grow in either sun or shade.

Ferns should be reset in the Spring or during the Summer through August. This will give plenty of time for a new set of fronds to come while the roots are getting established. If they are planted in the Fall they require a good mulching of leaves. The fronds should be cut back when the plants are moved.

PROPAGATION. The Ferns are propagated by dividing the root stalks, the underground stems from which the upright stems grow.



Wild ferns are much at home along the bank of this little lake

ROCK GARDENS AND PLANTS

THE gems of the mountains of the world may be brought to our doors if we but give them an environment which is homelike.

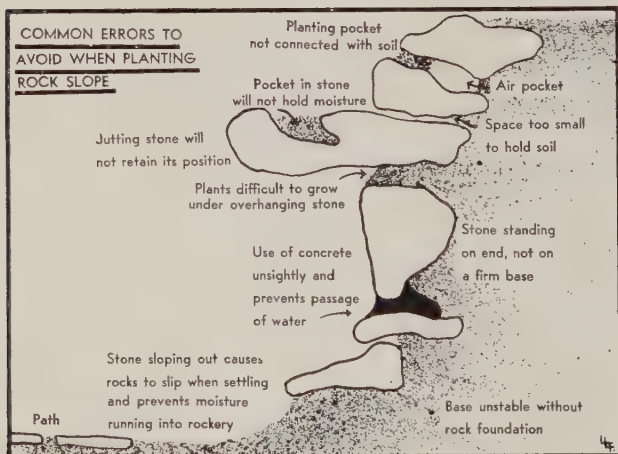
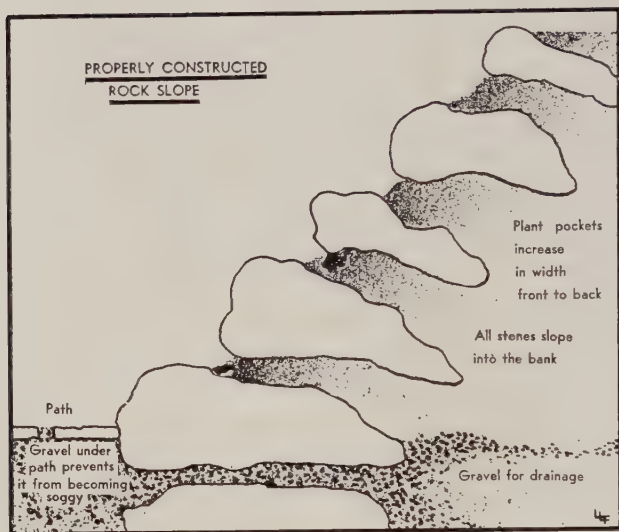
Typical alpine plants are those with long roots and a tufted leaf growth and include those which prefer the perfect drainage afforded by sloping rockeries. There is but little nitrogen in the soil of these characteristic natural situations; for this reason the soil requirements of the plants are easily satisfied. Provide for perfect drainage, even on a slope, by employing a layer of gravel beneath the area to be used as a rockery.

Tremendous quantities of rock are unnecessary; too often more rocks are used in the construction of such gardens than is necessary. Use the most natural rocks and place them as sensibly as possible, remembering that the appearance will be more restful when the strata runs properly or when the rocks are attractively grouped so that the final result does not have the appearance of a plum pudding full of raisins. Let Nature be your unfailing guide in making a rock garden. Each rock, if it is placed properly, will slope so as to catch the rain and conduct it back into the crevices. It is wise to fill all sections of the rock slope with soil as it is constructed. Large flat spaces may be left to be filled with a gravelly soil. Such areas will correspond to the moraine areas of the mountains.

For more complete information, the reader is advised to consult Louise B. Wilder's *Adventures in My Garden and Rock Garden*, Archie Thornton's *Rock Garden Primer*, H. Correvon's *Rock Garden and Alpine Plants*, S. Hamblin's *American Rock Gardens*, and Hankinson and Aust's *The Rock Garden*.

We may thus see that the directions for rockery construction are of the simplest but in actual practice many errors are committed. Unnaturalness results from too precipitous slopes, use of several kinds of stone, and artificial materials, impossible angles of rock, incongruous plants and too regular arrangement of rock so that the area appears to be a series of refuse heaps.

Montague Free in *The Rock Garden of the Brooklyn Botanic Garden*, Guide No. 5, quotes the late Mr. Clarence Lown, dean of American rock gardeners, as saying:



“If ordinary soil is used in the rock garden and no especial pains are taken as to drainage, many of these plants will do beautifully in the early months and the gardener will be delighted with the ease with which they may be grown. But this is somewhat in the nature of a false triumph and a different story is told when real Summer comes. The heat is bad enough and if the weather be dry, watering is to be done at evening; then the plants will be fairly comfortable. But it is when we have a spell of hard showers, with heat and humidity, that these same plants suffer. The ground remains soaked around the crown and the leaves do not dry off



An attractive rockery planned with large soil spaces for plants

From *Gardening*, by L. Williams

quickly enough and the result is the damping of some choice plants. The porous soil advised will in great measure prevent this by giving quick drainage.

"A great many of the plants suitable for growing in rockeries will not require any special soil mixture, but all, or nearly all, will grow well in it, and to assure better success, it is advised that the soil mixture be approximately as follows:

- 3 parts good loam from rotted sods, 1 part sharp sand.
- 2 parts humus. I use swamp muck that has been exposed to weather for two years and become fine. When freshly dug, it is lumpy and sour. Wood soil would probably be better, but that would be hard to get in sufficient quantity.
- 2 parts crushed stone, such as is used for finishing roads, or fine gravel.
- $\frac{1}{2}$ part crushed limestone or old mortar; as most rock plants like lime or do not object to it.

"This mixture should not be less than 14 inches deep, the deeper the better. This makes a porous soil giving quick drainage, enabling the plant to root more deeply than it would in a stiffer soil, and so withstanding drought better. The stone in it aids in keeping the soil cool.

"Do not forget to give a top dressing of crushed stone or fine gravel around the plants. This serves to keep the crown from getting waterlogged and also keeps the surface of the ground cool.

"This mixture is as good as any for a foundation soil and agrees with most of the plants, but, of course, no one stated mixture can be expected to serve for all. Some, the Encrusted Saxifrages, for example, like much more grit; and some like more humus, especially any that grow naturally in woods or partly shaded places."

In choosing plants, many of our usual border perennials may be used, but too frequently they are of such rampant growth that shortly the rockery does not consist of a collection of many plants but is instead a mass of few colors blooming at one season only.

Some of the easily grown rock plants which may be recommended are:

ACHILLEA TOMENTOSA (Woolly Yarrow). See page 67.

ADONIS AMURENSIS (Amur Adonis). Finely cut foliage; yellow buttercup-like flowers but larger. April. Takes a little while to become established. Raised from seed or division. Old seed is worthless; even good seed sometimes wait a year to germinate.

AETHIONEMA CORDIFOLIUM (Lebanon Stonecress). Resembles Hardy Candytuft, but flowers are pink. Raised from seed or cuttings. Give perfect drainage. Wilder says they like gritty soil with a little lime.

ALYSSUM SAXATILE (Goldentuft). See page 77.

ANEMONE PULSATILLA (European Pasqueflower). See page 81.

ANEMONE PATENS NUTALLIANA (American Pasqueflower).

AQUILEGIA, various (Columbine). See page 84.

ARABIS ALPINA (Alpine Rockcress). See page 86.

ARENARIA MONTANA (Mountain Sandwort). Dwarf trailing plant. June. White star-shaped flowers. Raised from seed or by cuttings, in Spring or Summer. Sun.

- ARTEMISIA STELLERIANA* (Beach Wormwood). See page 88.
- ASTER ALPINUS* (Rock Aster). See page 96.
- ASTER* (Mauve Cushion). Excellent for late effects in the rockery. See page 96.
- AUBRIETA DELTOIDEA* (Purple Rockcress). See page 100.
- BEGONIA EVANSIANA* (Hardy Begonia). Growth one foot. Flowers characteristic of Begonias, pink, appearing in late Summer. For shaded and moist spots. Increased by bulbets produced in axils of the leaves.
- BELLIS PERENNIS* (English Daisy). See page 102.
- BELLUM MINUTUM* (Greek Daisy). Like a tiny English Daisy. Raised from seed.
- CAMPANULA CARPATICA* and *ROTUNDIFOLIA* (Bellflower). See page 108.
- CAMPANULA PUSILLA*. Grows 6 to 8 inches. Soft blue bells. June. Very dainty. Raised from seed.
- CATANANCHE CAERULEA* (Cupids-dart). Really an everlasting flower. Flowers somewhat like a Cornflower, purple or white. Foliage very narrow with a few long teeth. Raised from seed.
- CENTRANTHUS* (*VALERIANA*) *RUBER* (Jupitersbeard). Half spreading plant. Sprays of fine deep red or white flowers. Very showy in June. Raised from cuttings or seed.
- CERASTIUM TOMENTOSUM* (Snow-in-summer). See page 115. A bit too spreading by nature in rock gardens.
- CERATOSTIGMA PLUMBAGINOIDES* (Larpente Plumbago). See page 116.
- CHEIRANTHUS ALLIONI* (Blistercress). Biennial. Brilliant, advancing orange color. Blooms from May through Midsummer. Raised from seed each year.
- CORYDALIS LUTEA* (Yellow Corydalis). Related to the Bleedingheart. Growth 10 to 12 inches. Produces heads of golden yellow flowers with a reddish center. Long season. Raised by division or seed; often self sows.
- DAPHNE CNEORUM* (Garlandflower). See page 128. More adapted to the rockery than the perennial border.
- DIANTHUS* especially *DELTOIDES*, *CAESIUS* and *PLUMARIUS* (Pinks). See page 132.
- DICENTRA*, various. (Includes Dutchmans-breeches, Plume Bleedingheart.)
- DRACOCEPHALUM RUYSCHIANA* (Siberian Dragonhead). Upright plants 1 foot tall. Hyssop-like leaves. Purple flowers in spikes. Raised from seed.
- EPIMEDIUM* (Barrenwort). See page 146.
- EUPHORBIA CYPARISSIAS* (Cypress Spurge). Fine foliage; somewhat resembles that of Groundpine (*LYCOPodium*). Yellow flowers in late May. May spread too much.
- EUPHORBIA EPITHYMOIDES* or *POLYCHROMA* (Cushion Spurge). Wide foliage; bright yellow flowers in very showy flat heads. Sun. Both sorts are increased by division.
- FESTUCA GLAUCA* (Blue Fescue). See page 162.
- GALIUM BOREALE* (Northern Bedstraw). Feathery masses of leaves and flowers. Most persons believe this to be a sort of Babysbreath. There are several wild sorts with bristly stems which catch in the clothing. Leaves in whorls; flowers tiny and white, appearing in May and June. Increased by division.

GERANIUM SANGUINEUM (Bloodred Cranesbill). See page 157.

GEUM (Avens). See page 158.

GLOBULARIA TRICHOSANTHES (Globedaisy). Soft blue flowers in dense, globular heads. Good in peaty soils. Increased by seed.

GYPSOPHILA PANICULATA (Babysbreath). See page 163.

HELIANTHEMUM (Sunrose). See page 168.

HELONIAS BULLATA (Swamp-pink). Good for moist places. Racemes of pinkish flowers in May.

HEUCHERA SANGUINEA (Coralbells). See page 177.

HOUSTONIA CAERULEA (Bluets). One of our wild flowers with the daintiest, four-petaled, light blue flowers. Often difficult to establish.

IBERIS SEMPERVIRENS (Evergreen Candytuft). See page 182.

IRIS CHAMAEIRIS (Crimean Iris). See page 185.

LEONTOPODIUM ALPINUM (Common Edelweiss). See page 188.

LIMONIUM (STATICE) LATIFOLIUM (Bigleaf Sea-lavender).

LINARIA CYMBALARIA (Kenilworth-ivy). Hardy, but commonly seen in greenhouses.

LINUM PERENNE (Perennial Flax). See page 192.

MYOSOTIS ALPESTRIS (Alpine Forget-me-not). See page 205.

NEPETA MUSSINI (Caucasian Catnip). See page 206.



Phlox subulata, an ideal subject for a rockery

- NIEREMBERGIA RIVULARIS** (Whitecup). Low growth. Cup-shaped, creamy white flowers. June to August. Raised from seed.
- PHLOX SUBULATA** and **AMOENA**. See page 221.
- POLEMONIUM** (Jacobs-ladder). See page 226.
- PRIMULA** (Primrose). See page 229.
- SAGINA SUBULATA** (Pearlwort). Green mat of growth. Leaves and flowers very tiny; flowers star-like, white. Increased by division.
- SANTOLINA CHAMAECYPARISSUS** (Lavender-cotton). Gray leaves; very fine. Really a shrub. Raised from cuttings.
- SAPONARIA OCYMOIDES** (Rock Soapwort). Prostrate plants. Foliage completely smothered with lilac-pink flowers in late May. Spreads widely. Increased from seed or cuttings inserted in coldframe in early Summer.
- SATUREIA (CALAMINTHA) ALPINA** (Alpine Savory). Good foliage. Dainty spikes of rosy-purple flowers. Raised from seed.
- SAXIFRAGA**, various (Saxifrage). Typically rock plants. There are numerous sorts, some quite like Stonecrops, others not unlike Hen-and-chickens plants. **S. CORDIFOLIA** and **S. OPPOSITIFOLIA** have wide, almost round leaves and spikes of bell-shaped flowers. Raised from division or seed.
- SEDUM**, various (Stonecrop). See page 239.
- SEMPERVIVUM ARACHNOIDEUM** (Spider Houseleek). Low rosettes of leaves furnished with hairs, giving the appearance of spiderwebs. Flowers bright red.
- S. TECTORUM** (Hen-and-chickens) (Roof Houseleek). Pale green leaves and rosy red flowers. Both propagated by offsets.
- SILENE SCHAFTA** (Schaftha Catchfly). Rosy flowers. Spreading growth. Bloom in July. Raised from seed or cuttings.
- STACHYS LANATA** (Woolly Betony). Bears leaves covered with white, silky fur. Spreading growth. Flowers violet, produced in July. Propagated by division.
- TEUCRIUM CHAMAEDRYIS** (Chamaedrys Germander). Shrubby. Sparse blooming, but with glossy and attractive small leaves. Flowers rosy purple in early Summer. Raised from seed.
- THALICTRUM MINUS** (Low Meadowrue). See page 244.
- THYMUS SERPYLLUM** (Mother-of-thyme). Low, mat-like growth. Tiny leaves and white or rosy purple flowers. June. **T. s. VULGARIS** has larger leaves which are lemon-scented, hence it is known as Lemon Thyme.
- TROLLIUS EUROPAEUS** (Common Globeflower). See page 245.
- TUNICA SAXIFRAGA** (Saxifrage Tunicflower). Mat-like plants with smaller flowers and leaves than the Maiden Pink (*Dianthus deltoides*), but resembling it. Flowers blush colored. Raised from seed and division.
- VERONICA** (Speedwell). See page 246. Also **V. PECTINATA** (Comb Speedwell), which has grayish, woolly leaves and pink flowers. Prostrate growth.
- VIOLA** (Violets). See page 248.

USEFUL PERENNIAL LISTS

TWENTY-FIVE PERENNIALS FOR DRY PLACES

- | | |
|---|---|
| ACHILLEA MILLEFOLIUM ROSEA
(Pink Yarrow) | HELIANTHUS, various (Perennial
Sunflower) |
| AJUGA GENEVENSIS (Geneva Bugle) | HEMEROCALLIS, various (Daylily) |
| ANTHEMIS TINCTORIA (Yellow Cam-
omile) | IRIS, BEARDED |
| ASCLEPIAS TUBEROSA (Butterfly-
weed) | LEONTOPODIUM ALPINUM (Edel-
weiss) |
| ASTER, various (Michaelmas Daisy) | LIMONIUM (Statice) LATIFOLIUM
(Bigleaf Sea-lavender) |
| CALLIRHOE INVOLUCRATA (Low
Poppymallow) | LYCHNIS CORONARIA (Rose Cam-
pion) |
| CASSICA MARILANDICA (American
Senna) | OENOTHERA MISSOURIENSIS (Ozark
Sundrops) |
| COREOPSIS GRANDIFLORA (Big Core-
opsis) | OPUNTIA, various (Hardy Cactus) |
| DIANTHUS BARBATUS (Sweet-wil-
liam) | PAPAVER NUDICAULE (Iceland
Poppy) |
| ECHINOPS RITRO (Steel Globethistle) | PHLOX, Hardy |
| EUPHORBIA COROLLATA (Flowering
Spurge) | RUDBECKIA LACINIATA (Cutleaf
Coneflower) |
| GYPSOPHILA PANICULATA (Babys-
breath) | VERONICA RUPESTRIS (Rock Speed-
well) |
| | YUCCA FILAMENTOSA (Adams-needle) |

TWENTY-FIVE PERENNIALS FOR WET PLACES

*May be grown in water.

- | | |
|---|---|
| *ARUNDO DONAX (Giant Reed) | *IRIS PSEUDACORUS (Yellowflag Iris) |
| ASCLEPIAS INCARNATA (Swamp
Milkweed) | I. SIBIRICA (Siberian Iris) |
| BOLTONIA ASTEROIDES (Starwort) | *I. VERSICOLOR (Blueflag Iris) |
| *CALTHA PALUSTRIS (Marshmari-
gold) | LOBELIA CARDINALIS (Cardinal-
flower) |
| EULALIA JAPONICA (Zebra Grass) | L. SIPHILITCA (Large Blue Lobe-
lia) |
| EUPATORIUM PERFOLIATUM (Bone-
set) | LYSIMACHIA CLETHROIDES (Clethra
Loosestrife) |
| E. PURPUREUM (Joe-pye-weed) | LYTHRUM SALICARIA (Purple Loose-
strife) |
| FERNS | MONARDA DIDYMA (Beebalm) |
| ONOCLEA SENSIBILIS (Sensitive
Fern) | MYOSOTIS PALUSTRIS (Forget-me-
not) |
| *OSMUNDA REGALIS (Royal Fern) | *PONTERDERIA CORDATA (Pickerel-
weed) |
| OSMUNDA CINNAMOMEA (Cinna-
mon Fern) | RANUNCULUS, several (Buttercup) |
| HELENIUM AUTUMNALE (Sneeze-
weed) | *SAGITTARIA LATIFOLIA (Arrowhead) |
| HIBISCUS MOSCHEUTOS (Rosemal-
low) | *SARRACENIA PURPUREA (Pitcher-
plant) |

SWEET-SCENTED PERENNIALS

ALOYSIA CITRIODORA (Lemon-ver-bena)	HEMEROCALLIS FLAVA (Lemon Day-lily)
CONVALLARIA MAJALIS (Lily-of-the-valley)	IRIS, various (Bearded Iris)
DIANTHUS PLUMARIUS (Grass Pink)	LAVANDULA VERA (Lavender)
HOSTA GRANDIFLORA (Plantainlily)	VALERIANA OFFICINALIS (Garden-heliotrope)

TWENTY-FIVE BEST PERENNIALS FOR CUT FLOWERS

ACHILLEA MILLEFOLIUM ROSEA (Pink Yarrow)	HELENIUM AUTUMNALE, Riverton Beauty (Sneezeweed)
A. PTARMICA (The Pearl)	H. AUTUMNALE, Riverdale Gem (Sneezeweed)
ANEMONE JAPONICA (Japanese Anemone)	HELIANTHUS DECAPETALUS (Thin-leaf Sunflower)
ASTER, ST. EGWIN (Hardy Aster)	IRIS, various (Flag)
CENTAUREA, various (Cornflowers)	KNIPHOFIA UVARIA (Torchlily)
CHRYSANTHEMUM, Hardy	PAEONIA (Peony)
C. MAXIMUM (Shasta Daisy)	PHYSOSTEGIA VIRGINIANA (False-dragonhead)
COREOPSIS GRANDIFLORA (Big Coreopsis)	PYRETHRUM ROSEUM (Painted Lady)
DELPHINIUM hybrids (Larkspur)	RUDBECKIA, various (Coneflower)
DIANTHUS BARBATUS (Sweet-william)	SALVIA AZUREA GRANDIFLORA (Great Azure Sage)
D. PLUMARIUS (Clove Pink)	SEDUM SPECTABILE (Showy Stonecrop)
GAILLARDIA GRANDIFLORA (Blanketflower)	VERONICA LONGIFOLIA SUBSESSILIS (Clump Speedwell)
GYPSOPHILA, various (Babysbreath)	

PERENNIALS TO ADD TO FLOWER ARRANGEMENTS

When Iris, Peonies, Chrysanthemums, Delphiniums and the standard sorts are used as cut flowers, one often searches for just the right sort to use as a combining flower. Here are twenty-five you will like:

ACHILLEA MILLEFOLIUM ROSEA (Pink Yarrow)	EUPATORIUM COELESTINUM (Mist-flower)
ACHILLEA PTARMICA PERRY WHITE (Sneezewort)	EUPHORBIA COROLLATA (Flowering Spurge)
ARTEMISIA LACTIFLORA (White Mugwort)	GYPSOPHILA PANICULATA (Ehrlei and Bristol Fairy Babysbreath)
ARTEMISIA SILVER KING	LIATRIS PYCNOSTACHYA (Cattail Gayfeather)
ASTILBE, various (Herbaceous Spireas)	PENTSTEMON TORREYI (Torrey Beardtongue)
CLEMATIS RECTA (Ground Clematis)	VALERIANA OFFICINALIS (Garden-heliotrope)
CONVALLARIA MAJALIS (Lily-of-the-valley)	
DELPHINIUM GRANDIFLORUM (Siberian Larkspur)	

TWENTY-FIVE EDGING PLANTS

Less than a foot tall

- | | |
|---|---|
| AEGOPODIUM PODOGRARIA (Goutweed) | FESTUCA GLAUCA (Blue Fescue) |
| AJUGA REPTANS (Carpet Bugle) | FILIPENDULA HEXAPETALA (Dropwort) |
| ALYSSUM SAXATILE COMPACTUM (Dwarf Goldentuft) | HEUCHERA SANGUINEA (Coralbells) |
| ARABIS ALPINA (Alpine Rockcress) | IBERIS SEMPERVIRENS (Evergreen Candytuft) |
| BELLIS PERENNIS (English Daisy) | IRIS PUMILA (Dwarf Iris) |
| CAMPANULA CARPATICA (Carpathian Bellflower) | PAPAVER NUDICAULE (Iceland Poppy) |
| CERASTIUM TOMENTOSUM (Snow-in-summer) | PHLOX SUBULATA (Moss Phlox) |
| CERATOSTIGMA PLUMBAGINOIDES (Larpente Plumbago) | PRIMULA VERIS (Cowslip Primrose) |
| CRUCIANELLA STYLOSA (Crosswort) | SEDUM, various (Stonecrop) |
| DIANTHUS BARBATUS (Sweet-william) | STATICE ARMERIA (Thrift) |
| D. PLUMARIUS (Grass Pink) | TUNICA SAXIFRAGA (Saxifrage Tunicflower) |
| DICENTRA EXIMIA (Fringed Bleedingheart) | VERONICA INCANA (Woolly Speedwell) |
| | VERONICA RUPESTRIS (Rock Speedwell) |

TWENTY-FIVE TALLEST PLANTS

(All are above five feet tall)

Excellent for bold foliage and flower effects

- | | |
|--|---|
| ALTHAEA ROSEA (Hollyhock) | EULALIA JAPONICA (Zebra Grass) |
| ARUNDO DONAX (Giant Reed) | EUPATORIUM PURPUREUM (Joe-pye-weed) |
| ASTER NOVAE-ANGLIAE (New England Aster) | HELENIUM AUTUMNALE (Sneezeweed) |
| ASTER TATARICUS (Tatarian Aster) | HELIANTHUS MAXIMILIANI (Maximilian Sunflower) |
| BOCCONIA CORDATA (Plumepoppy) | H. ORGYALIS (Narrowleaf Sunflower) |
| BOLTONIA ASTEROIDES (Starwort) | HIBISCUS MOSCHEUTOS (Rosemallow) |
| CAMPANULA PYRAMIDALIS (Chimney Bellflower) | POLYGONUM SACHALINENSE (Sackline) |
| CASSIA MARILANDICA (American Senna) | RUDBECKIA LACINIATA (Cutleaf Coneflower) |
| CEPHALARIA MONTANA (Roundheads) | R. MAXIMA (Great Coneflower) |
| CIMICIFUGA RACEMOSA (Cohosh Bugbane) | SOLIDAGO ALTISSIMA (Tall Goldenrod) |
| DELPHINIUM (Larkspur) | VALERIANA OFFICINALIS (Valerian) |
| EREMURUS ROBUSTUS (Giant Desertcandle) | YUCCA FILAMENTOSA (Adams-needle) |
| ERIANTHUS RAVENNAE (Ravenna Grass) | |

MORE THAN TWENTY-FIVE BLUE PERENNIALS

ANCHUSA ITALICA, Dropmore variety (Italian Bugloss). Deep blue
AQUILEGIA CAERULEA (Colorado Columbine). Deep blue
ASTER ALPINUS, *TATARICUS* and others. Light blue
BAPTISIA TINCTORIA (Yellow Wild-indigo). Deep blue
CAMPANULA CARPATICA, *PERSICIFOLIA*, *MEDIUM* and others.
CENTAUREA MONTANA. Deep blue
CERATOSTIGMA PLUMBAGINOIDES (Larpenite Plumbago). Deep blue
DELPHINIUM GRANDIFLORUM, Gold Medal hybrids, *Belladonna*, *Bellamosum*. Deep and light blue
ECHINOPS RITRO (Steel Globethistle). Deep blue
EUPATORIUM COELESTINUM (Mist-flower). Medium blue
ERYNGIUM AMETHYSTINUM (Amethyst Eryngo). Deep blue
HOSTA CAERULEA (Blue Plantain-lily). Deep blue

IRIS PALLIDA DALMATICA, *PUMILA* and others. Deep and light blue
LINUM PERENNE (Flax). Deep blue
LOBELIA SIPHILITICA (Blue Lobelia). Deep blue
LUPINUS POLYPHYLLUS (Washington Lupine). Deep blue
MERTENSIA VIRGINICA (Virginia Bluebells). Clear blue
MYOSOTIS (Forget-me-not). Light blue
NEPETA HEDERACEA (Ground-ivy)
POLEMONIUM CAERULEUM, *HUMILE* and *REPTANS*. Light blue
PULMONARIA ANGUSTIFOLIA AZUREA (Azure Lungwort). Clear blue
SCABIOSA CAUCASICA (Caucasian Sabiosa). Light blue
TRADESCANTIA VIRGINIANA (Spiderwort). Deep blue
VERONICA RUPESTRIS, *SPICATA* and others (Speedwell). Deep blue

TWENTY-FIVE MOST USED WHITE PERENNIALS FOR GARDEN EFFECT

ACHILLEA PTARMICA, Perry White (Sneezewort), 2 ft., July-Sept.
ANEMONE JAPONICA, Whirlwind (Japanese Anemone), 2-3 ft., Fall
AQUILEGIA VULGARIS NIVEA (Munstead Columbine), 2 ft., May.
ARABIS ALPINA (Rockcress), 1 ft., April
ASTER PTARMICOIDES (Hardy Aster), 1½ ft., Aug.
CAMPANULA CARPATICA ALBA (Carpathian Bluebell), 9 in., June-Oct.
C. PERSICIFOLIA ALBA (Peachleaf Bellflower), 2 ft., June-July
CERASTIUM TOMENTOSUM (Snow-in-summer), 9 in., May
CHRYSANTHEMUM (Shasta Daisy), 1½ ft., May-July
C. ULIGINOSUM (Giant Daisy), 4 ft., Sept.-Oct.

CLEMATIS RECTA (Ground Clematis), 3 ft., June-July
DELPHINIUM GRANDIFLORUM ALBA (White Siberian Larkspur), 2 ft., July-Sept.
FILIPENDULA ULMARIA (Meadow-sweet), 1½ ft., June-July
GYPSOPHILA PANICULATA and *ACUTIFOLIA* (Babysbreath), 2-3 ft., June-July
HIBISCUS OCULIROSEUS (Crimson-eye Rosemallow), 4 ft., July-Sept.
HOLLYHOCK, 6-8 ft., June
HOSTA PLANTAGINEA (Plantainlily), 1½ ft., July
IBERIS SEMPERVIRENS (Evergreen Candytuft), 1 ft., April
IRIS SIBIRICA, Snow Queen (Siberian Iris), 3 ft., June
LYSIMACHIA CLETHROIDES (Clethra Loosestrife), 2 ft., July-Sept.

TWENTY-FIVE MOST USED WHITE PERENNIALS FOR GARDEN EFFECT—Continued

PHLOX SUFFRUTICOSA, Miss Lingard (Hardy Phlox), 3 ft., June

PHYSOSTEGIA VIRGINIANA ALBA (False-dragonhead), 3 ft., June-July

VALERIANA OFFICINALIS (Valerian), 4 ft., June-July

VERONICA VIRGINICA (Culvers-physic), 3-4 ft., July-Aug.

YUCCA FILAMENTOSA (Yucca), 4 ft., July

SUCCESSION OF BLOOM

February

ERANTHIS HYEMALIS (Winter-aconite)

ERICA CARNEA (Spring Heath)

HELLEBORUS NIGER (Christmas-rose)

March

CROCUS SUSIANUS (Cloth of Gold Crocus)

IRIS RETICULATA (Netted Iris)

NARCISSUS CYCLAMINEUS (Cyclamen-flowered Daffodil)

SCILLA SIBIRICA (Siberian Squill)

April

ADONIS AMURENSIS (Amur Adonis)

A. VERNALIS (Spring Adonis)

AJUGA REPTANS (Carpet Bugle)

ALYSSUM SAXATILE (Goldentuft)

ANEMONE PULSATILLA (Pasque-flower)

ANEMONELLA THALICTROIDES (Rue-anemone)

AQUILEGIA, various (Columbine)

ARABIS ALPINA (Rockcress)

AUBRIETA DELTOIDEA (Purple Rock-cress)

BELLIS PERENNIS (English Daisy)

CALTHA PALUSTRIS (Marshmarigold)

CENTAUREA MONTANA (Mountain-bluet)

CLAYTONIA VIRGINICA (Spring-beauty)

DAPHNE CNEORUM (Rose Daphne)

DICENTRA CANADENSIS (Squirrel corn)

D. CUCULLARIA (Dutchmans-breeches)

D. EXIMIA (Fringed Bleeding-heart)

D. SPECTABILIS (Bleedingheart)

ERYTHRONIUM AMERICANUM (Trout-lily)

EUPHORBIA POLYCHROMA (Cushion Spurge)

HEPATICA TRILOBA (Roundlobe Hepatica)

HOUSTONIA CAERULEA (Bluets)

IBERIS SEMPERVIRENS (Evergreen Candytuft)

IRIS CHAMAEIRIS (PUMILA) (Crimmean Iris)

MERTENSIA VIRGINICA (Virginia Bluebells)

NEPETA MUSSINI (European Cat-mint)

PAPAVER NUDICAULE (Iceland Poppy)

PHLOX DIVARICATA (Blue Phlox)

P. SUBULATA (Moss Phlox)

POLEMONIUM REPTANS (Creeping Polemonium)

PRIMULA, various (Primrose)

SANGUINARIA CANADENSIS (Blood-root)

SAXIFRAGA CORDIFOLIA (Saxifrage)

THALICTRUM DIOICUM (Early Meadowtue)

TRILLIUM, various (Wake-robin)

VERONICA PECTINATA (Comb Speedwell)

VIOLA CORNUTA (Tufted Pansy)

May

ACHILLEA TOMENTOSA (Woolly Milfoil)

ACTEA, various (Baneberry)

AETHIONEMA CORDIFOLIUM (Lebanon Stonecress)

AJUGA REPTANS (Carpet Bugle)

ALYSSUM SAXATILE (Goldentuft)

AQUILEGIA, various (Columbine)

SUCCESSION OF BLOOMS—Continued

May—Continued

ASPERULA ODORATA (Sweet Wood-ruff)
 ASTER ALPINUS (Alpine Aster)
 BELLIS PERENNIS (English Daisy)
 CERASTIUM TOMENTOSUM (Snow-in-sum-mer)
 CONVALLARIA MAJALIS (Lily-of-the-valley)
 DIANTHUS BARBATUS (Sweet-wil-liam)
 D. PLUMARIUS (Grass Pink)
 DICENTRA SPECTABILIS (Bleeding-heart)
 DORONICUM, various (Leopardbane)
 EPIMEDIUM, various (Bishops-cap)
 EUPHORBIA CYPARISSIAS (Cypress Spurge)
 FILIPENDULA HEXAPETALA (Drop-wort)
 GERANIUM MACULATUM (Wild Gera-nium)
 G. IBERICUM (Iberian Cranesbill)
 G. SANGUINEUM (Bloodred Cranesbill)
 HELENIUM HOOPESI (Orange Sneeze-weed)
 HESPERIS MATRONALIS (Dames Rocket)
 IBERIS SEMPERVIRENS (Evergreen Candytuft)
 IRIS, Bearded
 I. CRISTATA (Crested Iris)
 LINUM PERENNE (Perennial Flax)
 LUPINUS POLYPHYLLUS (Lupine)
 LYCHNIS CHALCEDONICA (Maltese Cross)
 MALVA MOSCHATA (Musk Mallow)
 MERTENSIA VIRGINICA (Virginia Bluebells)
 MYOSOTIS, various (Forget-me-not)
 NEPETA MUSSINI (European Cat-mint)
 NIEREMBERGIA RIVULARIS (White-cup)
 OENOTHERA FRUITICOSA (Sundrops)
 PAEONIA MOUTAN (Tree Peony)
 POLEMONIUM CAERULEUM (Greek-valerian)
 PRIMULA, various (Primrose)

PYRETHRUM ROSEUM (Pink Daisy)
 RANUNCULUS REPENS (Creeping Buttercup)
 SAXIFRAGA, various (Saxifrage)
 SEDUM, various (Stonecrop)
 STATICE ARMERIA (Thrift)
 THYMUS SERPYLLUM (Mother-of-thyme)
 TROLLIUS EUROPAEUS (Globeflower)
 VERONICA TEUCRIUM RUPESTRIS (Speedwell)
 VIOLA, various (Pansy and Violets)

June

ACHILLEA MILLEFOLIUM ROSEA (Pink Yarrow)
 A. PTARMICA (The Pearl)
 A. TOMENTOSA (Woolly Yarrow)
 ALYSSUM ROSTRATUM (Yellowhead Alyssum)
 ASCLEPIAS TUBEROSA (Butterfly-weed)
 CALLIRHOE INVOLUCRATA (Poppy-mallow)
 CAMPANULA CARPATICA (Carpathian Bellflower)
 C. GLOMERATA (Danesblood)
 C. LATIFOLIA (Great Bellflower)
 C. MEDIUM (Canterbury-bells)
 C. PERSICIFOLIA (Peachleaf Bellflower)
 CENTRANTHUS RUBER (Jupiters-beard)
 CORONILLA VARIA (Crownvetch)
 DELPHINIUM, various (Hardy Larkspur)
 DIANTHUS BARBATUS (Sweet-wil-liam)
 D. PLUMARIUS (Grass Pink)
 DICTAMNUS ALBUS (Gasplant)
 DIGITALIS, various (Foxglove)
 ECHINOPS RITRO (Steel Globethistle)
 ERODIUM MANESCAVI (Pyrenees Heronbill)
 GEUM COCCINEUM (Avens)
 GYPSOPHILA, various (Babysbreath)
 HEMEROCALLIS, various (Daylily)
 HEUCHERA SANGUINEA (Coralbells)

SUCCESSION OF BLOOMS—Continued

June—Continued

HOLLYHOCK (*Althea rosea*)
 IRIS, Bearded
 Siberian (*Iris sibirica*)
 LEONTOPODIUM ALPINUM (Edelweiss)
 LYCHNIS, various (Campion)
 LYTHRUM SALICARIA (Purple Loosestrife)
 MONARDA DIDYMA (Beebalm)
 PAPAVER NUDICAULE (Iceland Poppy)

 P. ORIENTALE (Oriental Poppy)
 PENTSTEMON, various (Beardtongue)
 PAEONIA (Peony)
 PYRETHRUM ROSEUM (Pink Daisy)
 STACHYS LANATA (Woolly Betony)
 THERMOPSIS CAROLINIANA (Thermopsis)
 VERONICA INCANA (Woolly Speedwell)

July

ACHILLEA FILIPENDULINA (Fernleaf Yarrow)
 A. MILLEFOLIUM ROSEA (Pink Yarrow)
 A. PTARMICA, The Pearl
 ACONITUM NAPELLUS (Aconite)
 ANCHUSA ITALICA, Dropmore variety (Italian Bugloss)
 ANTHEMIS TINCTORIA (Yellow Camomile)
 ARUNCUS SYLVESTER (Goatsbeard)
 CASSIA MARILANDICA (Wild Senna)
 CHRYSANTHEMUM MAXIMUM (Shasta Daisy)
 DELPHINIUM, various (Hardy Larkspur)
 DIGITALIS PURPUREA (Foxglove)
 FILIPENDULA ULMARIA (European Meadowsweet)
 GAILLARDIA ARISTATA (Blanketflower)
 GEUM COCCINEUM (Avens)
 HEMEROCALLIS THUNBERGI (Daylily)
 HEUCHERA SANGUINEA (Coralbells)
 HOLLYHOCK
 IRIS KAEMPFERI (Japanese Iris)

LYCHNIS, various (Campion)
 PENTSTEMON, various
 PHLOX SUFFRUTICOSA (Miss Lingard)
 PLATYCODON (Balloonflower)
 SCABIOSA CAUCASICA (Caucasian Scabiosa)
 STOKESIA CYANEA
 TRADESCANTIA VIRGINIANA (Virginia Spiderwort)

August

ACANTHUS MOLLIS (Bears-breech)
 ACHILLEA, various (see July) (Yarrow)
 ANTHEMIS TINCTORIA (Yellow Camomile)
 ARTEMISIA, various (Wormwood and others)
 BOCCONIA CORDATA (Plumepoppy)
 BOLTONTIA ASTEROIDES (White Boltontia)
 CARYOPTERIS INCANA (Bluebeard)
 CASSIA MARILANDICA (Wild Senna)
 CHELONE GLABRA (White Turtlehead)
 C. LYONI (Pink Turtlehead)
 CIMICIFUGA RACEMOSA (Bugbane)
 COREOPSIS GRANDIFLORA (Big Coreopsis)
 DELPHINIUM, various (Hardy Larkspur)
 DICENTRA EXIMIA (Fringed Bleedingheart)
 ERYNGIUM AMETHYSTINUM (Ame-thyst Eringo)
 FUNKIA, various (Plantainlily)
 GAILLARDIA ARISTATA (Blanketflower)
 GYPSOPHILA PANICULATA (Babysbreath)
 HELENIUM PUMILUM (Dwarf Sneezeweed)
 HELIANTHUS MOLLIS (Ashy Sunflower)
 HELIOPSIS PITCHERIANA (Pitcher Heliosis)
 HEUCHERA SANGUINEA (Coralbells)
 HIBISCUS MOSCHEUTOS (Rosemallow)

SUCCESSION OF BLOOMS—Continued

August—Continued

KNIPHOFIA UVARIA (Torchlily)
 LIATRIS PYCNOSTACHYA (Cattail
 Gayfeather)
 LINUM PERENNE (Perennial Flax)
 LOBELIA, various.
 LYSIMACHIA CLETHROIDES (Clethra
 Loosestrife)
 MONARDA DIDYMA, Cambridge Scar-
 let (Beebalm)
 PHLOX, Hardy
 PHYSOSTEGIA VIRGINIANA (False-
 dragonhead)
 PLATYCODON, various (Balloon-
 flower)
 SCABIOSA CAUCASICA (Caucasian
 Scabiosa)
 TUNICA SAXIFRAGA (Saxifrage Tu-
 nicflower)
 VERONICA LONGIFOLIA SUBSESSILIS
 (Clump Speedwell)

September

ACONITUM AUTUMNALE (Autumn
 Monkshood)
 ANEMONE JAPONICA (Japanese Ane-
 mone)
 ARTEMISIA LACTIFLORA (Mugwort)
 ASTER, various (Michaelmas Daisy)
 BOLTONIA ASTEROIDES (White Bol-
 tonia)
 CHRYSANTHEMUM MAXIMUM (Shasta
 Daisy varieties)
 CHELONE GLABRA (White Turtle-
 head)

CIMICIFUGA DAHURICA (Dahurian
 Bugbane)
 DIANTHUS LATIFOLIUS ATROCOC-
 CINEUS FL. PL. (Everblooming Sweet-
 william)
 EUPATORIUM, various (Boneset and
 others)
 GALLARDIA ARISTATA (Blanket-
 flower)
 HELIANTHUS MAXIMILIANI (Maxi-
 milian Sunflower)
 HELIANTHUS ORGYALIS (Narrow-
 leaved Sunflower)
 HELENIUM, various (Sneezeweed)
 HELIOPSIS PITCHERIANA (Pitcher
 Heliopsis)
 HIBISCUS MOSCHEUTOS (Common
 Rosemallow)
 KNIPHOFIA UVARIA (Torchlily)
 LATHYRUS LATIFOLIUS (Perennial
 Pea)
 LIATRIS PYCNOSTACHYA (Cattail
 Gayfeather)
 LOBELIA CARDINALIS (Cardinal-
 flower)
 L. SIPHILITICA (Large Blue Lobelia)
 PHYSOSTEGIA VIRGINIANA (False-
 dragonhead)
 POLYGONUM, various (Fleeceflower)
 RUDBECKIA, various (Coneflower,
 Black-eyed-susan)
 SEDUM SPECTABILE (Showy Stone-
 crop)
 STOKESIA LAEVIS (Stokes-Asters)
 VERONICA LONGIFOLIA SUBSESSILIS
 (Clump Speedwell)

TWENTY-FIVE PERENNIALS BLOOMING AFTER FROST

ACONITUM FISCHERI (Azure Monks-
 hood)
 ANEMONE JAPONICA (Japanese Ane-
 mone)
 ASTER TATARICUS (Tatarian Aster)
 BOLTONIA ASTEROIDES (White Bol-
 tonia)
 CALLIRHOE INVOLUCRATA (Low
 Poppymallow)

CERATOSTIGMA PLUMBAGINOIDES
 (Larpenite Plumbago)
 CHRYSANTHEMUM, hardy sorts
 DAPHNE CNEORUM (Rose Daphne)
 DELPHINIUM GRANDIFLORUM (Si-
 berian Larkspur)
 DIANTHUS LATIFOLIUS ATROCOC-
 CINEUS (Everblooming Sweet-
 william)

TWENTY-FIVE PERENNIALS BLOOMING AFTER FROST—Continued

ECHINACEA PURPUREA (Purple Cone-flower)	LATHYRUS LATIFOLIUS (Perennial Pea)
EUPATORIUM COELESTINUM (Mist-flower)	PHLOX, Hardy sorts
GAILLARDIA ARISTATA (Blanket-flower)	POLYGONUM AMPLEXICAULE (Mountain Fleecflower)
HELIANTHUS MAXIMILIANI (Maximilian Sunflower)	SALVIA AZUREA GRANDIFLORA (Great Azure Sage)
H. ORGYALIS (Fine-leaved Sunflower)	S. FARINACEA (Mealycup Sage)
KNIPHOFIA UVARIA (Torchlily)	S. ULIGINOSA (Bog Sage)
	SOLIDAGO, various (Goldenrod)
	STOKESIA LAEVIS (Stokes-Aster)
	VIOLA CORNUTA (Tufted Pansy)

PERENNIALS FOR LONG SEASON OF BLOOM

CALLIRHOE INVOLUCRATA (Poppy-mallow)	DICENTRA EXIMIA (Fringed Bleedingheart)
CAMPANULA CARPATICA (Carpathian Bellflower)	GAILLARDIA ARISTATA (Blanket-flower)
CENTAUREA MONTANA (Mountain-bluet)	MYOSOTIS ALPESTRIS (Alpine Forget-me-not)
COREOPSIS GRANDIFLORA (Big Coreopsis)	PHYSOSTEGIA VIRGINIANA (False-dragonhead)
DELPHINIUM (Hardy Larkspur)	VIOLA CORNUTA Jersey Gem Viola
DIANTHUS LATIFOLIUS ATROCOC- CINEUS (Everblooming Sweet-wil- liam)	

TWENTY-FIVE DAISY-LIKE FLOWERS OF VARIOUS COLORS

ANTHEMIS TINCTORIA (Camomile). Lemon-yellow	DORONICUM, various (Leopardbane). Golden
ASTER LAEVIS (Smooth Aster). Lilac lavender	ECHINACEA PURPUREA (Purple Cone- flower). Rosy purple
A. NOVAE-ANGLIAE (New Eng- land Aster). Purple	ERIGERON, various (Fleabane). Rosy purple to white.
A. NOVIBELGI (New York Aster). Pink	GAILLARDIA ARISTATA (Blanket- flower). Yellow and crimson
A. PTARMICOIDES. White	HELENIUM AUTUMNALE, Riverton Gem and others (Sneezeweed). Maroon to gold
BELLIS PERENNIS (English Daisy). Crimson to white	H. HOOPESI (Orange Sneezeweed). Yellow
BOLTONIA ASTEROIDES (White Bol- tonia). White	HELIANTHUS MAXIMILIANI (Maximi- lian Sunflower). Gold
B. LATISQUAMA (Violet Boltonia). Blue violet	H. ORGYALIS (Fineleaf Sun- flower). Gold
CHRYSANTHEMUM MAXIMUM (Pyre- nees Chrysanthemum). White	HELIOPSIS SCABRA, Excelsior (Rough Heliopsis). Gold
C. ULIGINOSUM (Giant Daisy). White	INULA ENSIFOLIA (Swordleaf Inula). Yellow.
COREOPSIS GRANDIFLORA (Big Core- opsis). Golden	

25 DAISY-LIKE FLOWERS OF VARIOUS COLORS—Continued

- LEPACHYS PINNATA** (Grayhead Coneflower). Yellow
PYRETHRUM ROSEUM (Pink Daisy). Crimson to white.
RUDBECKIA MAXIMA (Great Coneflower). Gold
R. NEWMANNI (Showy Coneflower). Gold, purple cone

PERENNIALS WITH GOOD FOLIAGE

- ACAENA**, various (Acaena). Evergreen
ACANTHUS, various (Bearsbreech). Spiny
ADIANTUM PEDATUM (Maidenhair Fern). Fern
AEGOPODIUM PODOGRARIA (Goutweed). Variegated
AJUGA REPTANS (Bugle). Purple, Evergreen
ANTENNARIA, various (Pussytoes). Grey
ARABIS ALPINA (Rockcress). Greyish
ARRHENATHERUM BULBOSUM (Oatgrass). Variegated grass
ARTEMISIA, various (Includes Wormwood, Sagebrush). Grey
ARUNDO DONAX (Giant Reed). Grass
ASARUM CANADENSE (Wildginger). Velvety
ASPIDIUM ACROSTICHOIDES (Christmas Fern). Evergreen fern
ASTER TATARICUS (Tatarian Aster). Background
BOCCONIA CORDATA (Plumepoppy). Grey
CERASTIUM TOMENTOSUM (Snow-on-the-mountain). Grey
CHIMAPHILA, various (Pipsissewa). Evergreen
CYSTOPTERIS BULBIFERA (Bladderfern). Fern
DIANTHUS, various (Pinks). Grey, evergreen
ECHINOPS, various (Globethistle). Grey
ELYMUS GLAUCUS (Lyme Grass). Grey grass
EPIMEDIUM, various (Bishops-hat). Dainty
ERIANTHUS RAVENNAE (Ravenna Grass). Grass
ERYNGIUM, various (Seaholly). Grey
EUPHORBIA EPITHYMOIDES (Cushion Spurge). Grey
FESTUCA GLAUCA (Grey Fescue). Grey grass
FILIPENDULA HEXAPETALA (Dropwort). Fernlike
GOODYERA PUBESCENS (Rattlesnake-plantain). Variegated
GYNERIUM, various (Pampasgrass). Grass
HELIANTHUS ORGYALIS (Narrow-leaf Sunflower). Fountain of leaves
HELLEBORUS NIGER (Christmas-rose). Evergreen
HOSTA, various (Plantainlily). Good in shade
MISCANTHUS SINENSIS (Eulalia). Grass
MITCHELLA REPENS (Partridgeberry). Variegated
ONOCLEA, various (Sensitive Fern). Fern
OSMUNDA, various (Royal and Cinnamon Fern). Fern
PHALARIS ARUNDINACEA (Gardeners-garter). Variegated grass
PHLOX SUBULATA (Moss Phlox). Evergreen
PYROLA, var's (Shinleaf). Evergreen
SANGUINARIA CANADENSIS (Bloodroot). Grey
SAXIFRAGA, various (Saxifrage). Some evergreen
SEDUM, various (Stonecrop). Grey, some evergreen
SEMPERVIVUM, various (Stonecrop). Grey, evergreen
STACHYS LANATA (Woolly Woundwort). Grey
THALICTRUM, various (Meadowrue). Dainty, some grey
THYMUS, various (Thyme). Some grey, others evergreen
VERONICA, various (Speedwell). Some grey

REPRESENTATIVE PERENNIALS

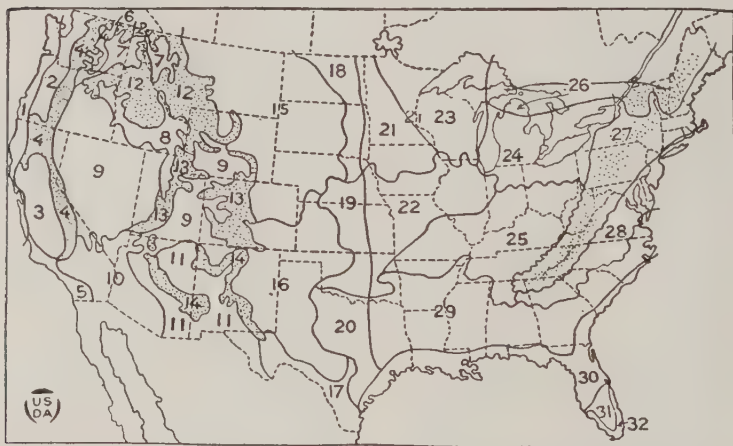
OF 32 REGIONAL DIVISIONS OF THE U. S.

DR. F. L. MULFORD, of the United States Bureau of Plant Industry, has devised a helpful map, divided into 32 regions, in which the areas with approximately similar growing conditions are specified by numbers. (See the map on this page taken from *Farmer's Bulletin No. 1381*).

This map will be useful to the dwellers of these regions. Although extensive lists of perennials are not included, a few of the representative sorts are included.

REGION 1

Region 1 includes the Pacific Coast West of the Coast Range, from Santa Cruz Bay to the Canadian line. Its characteristics are cool, dry



Map of the United States

Showing by numbers within heavy border lines regions having approximately similar growing conditions. The stippled areas are mountain regions
(From *Farmer's Bulletin No. 1381*)

Summers with frequent fogs and heavy Winter rainfall, with lowest temperatures 8 to 10 degrees below freezing in the North to about freezing in the South.

Most of the perennials common in the Northeastern States thrive here with irrigation, especially those grown in Great Britain. Where there is no irrigation, succulents, such as Sedums, Mesembryanthemums, Cacti, Yuccas, Irises, and native plants, grow best.

REGION 2

Region 2 includes the Willamette Valley in Oregon and the region of similar climate North of it in Washington, including the shores of Puget Sound. The Summers are warmer and drier than in Region 1, and the average lowest temperatures are from 10 to 20 degrees.

The perennials common in Western Europe are well adapted to this region under irrigation, while succulents and native plants succeed wherever water is not available.

REGION 3

Region 3 includes the Sacramento and San Joaquin Valleys in California. This region has hot, dry Summers and mild Winters with 10 to 20 inches of rainfall. The temperature drops to 8 or 10 degrees below freezing on the valley floor, with slightly higher temperatures on the hillsides.

Without irrigation, succulents and plants native to regions having similar conditions are the only ones to be depended upon. With irrigation there are many more that will stand the hot sunshine and dry winds, such as Columbines, Delphiniums, Daylilies, Sunflowers, Chrysanthemums, and Phlox.

REGION 4

Region 4 includes the Sierra Nevada and Cascade Ranges of mountains. Conditions here vary considerably according to elevation. Many native plants grow well at the different altitudes, but at lower levels the valley plants are suitable. At a higher elevation those adapted to region 28 will succeed if irrigation water is available; if not, those suitable for region 19 will be best. For still higher elevations those listed for regions 27 and 18, respectively, are the ones to use.

REGION 5

Region 5 includes the coast West of the Coast Range from Santa Cruz to Santa Barbara, thence to San Diego, Redlands, and Riverside, including what is popularly known as "Southern California." The Summers are dry, cool on the coast and warm inland; the Winters are

moderately rainy, from 30 inches in the mountains to 10 inches in the valleys, being nearly free from frost on the coast and in the foothills. The same plants can be used here as in regions 1 and 2, and in addition many plants recognized as less hardy, such as Begonias and Heliotrope.

REGION 6

Region 6 is the Columbia River Valley. The Summers are warm, while the Winters have temperatures of 10 to 15 degrees.

If supplied with water, most of the perennials succeeding in region 2 will grow here, although without water only hardy succulents should be planted.

REGION 7

Region 7 includes the plateau of the Eastern part of Washington and the valleys of Idaho and Western Montana. The Summers are warm, and the Winter temperatures range from zero to —15 degrees.

Without irrigation water only the succulents, like the Sedums, Yuccas, and the hardiest Cacti will be likely to succeed, but with water the Columbines, Campanulas, Chrysanthemums, most Delphiniums, Daylilies, Irises in variety, Peonies, Phlox, Sunflowers, Heleniums, Rudbeckias, and many others may be grown.

REGION 8

Region 8 is the Snake River plains and the Utah Valley. It is a semi-arid country with water available for irrigation. The Summers are hot, and the Winters often have minimum temperatures of zero to 10 degrees below F., with a rainfall of 9 to 15 inches, mostly in Winter.

The same perennials that succeed in region 7 may be grown here.

REGION 9

Region 9 is the Northern part of the great arid interior plateau included in the States of Oregon, Nevada, and Utah. Its characteristics are hot days and occasional frosty nights in Summer with cold Winters and about 10 inches of rainfall annually.

Only frost-resistant plants will thrive, Cacti and some other succulents where irrigation is not possible, while with irrigation most of the perennials listed for region 7 can be used.

REGION 10

Region 10 includes all the Southwestern Desert, including portions of California, Arizona, and a corner of Nevada. The climate is hot to scorching, with a rainfall of 3 to 10 inches.

Here again only Cacti can be grown where there is no irrigation, and even with it only those plants will succeed that will stand hot sunshine with drying winds, such as Sunflowers, Gaillardias, Heleniums, Daylilies, and many Irises.

REGION 11

Region 11 comprises the Southern part of the great arid interior plateau included in New Mexico and Arizona. Its characteristics are the same as the plateau farther North (region 9), except that the temperatures are higher.

Yuccas, Cacti, and other succulents are the characteristic plants and should be used. Irises, Daylilies, Sunflowers, Rudbeckias, and Chrysanthemums may be used with irrigation.

REGION 12

Region 12 is that part of the Rocky Mountains included in Idaho, Montana, Wyoming, Washington, and Oregon. The temperature and rainfall vary greatly, depending on elevation and exposure. Many places are suitable for a great variety of plants; others are suited to only a few.

Succulents should be used where the water supply is limited, while plants suited to regions 23 and 26 may be used where there is plenty of moisture.

REGION 13

Region 13 includes the Rocky Mountains of Utah and Colorado. It is similar to the region farther North, except that the temperatures for the same elevation are about 7 degrees warmer. The plants that can be used at an elevation of 4000 feet in region 12 can be used at 6000 feet in this region.

REGION 14

Region 14 includes the Rocky Mountains of Arizona and New Mexico. It is similar to the region farther North, except that temperatures for the same elevation average about 6 degrees warmer than region 13 and 13 degrees warmer than region 12. Allowing 3 to 4 degrees of temperature for each 1000 feet of elevation would make possible the growing of a particular plant in region 14 at elevations 1500 feet higher than in region 13 when the moisture conditions are similar.

REGION 15

Region 15 is the Northern Great Plains area South to Kansas and Colorado, extending from about the 5500-foot contour on the West to the black soils on the East. It is extremely cold in Winter in the North-

eastern portions, usually dropping to 30 or 40 degrees below F., while close to the mountains it is 20 degrees warmer. The Summers are moderately warm. It is generally recognized as the Northern part of the dry-farming area, with a rainfall of about 15 inches.

Only the very hardiest and toughest perennials can be grown here, such as the Hollyhock, the Campanulas, Columbines, Delphiniums, *Dianthus plumarius*, *Helenium autumnale*, *Hemerocallis dumortieri*, *H. flava*, *H. fulva*, Irises except the bulbous kinds, *Mammillaria missouriensis*, *M. grahami*, *Opuntia polyacantha*, Peonies, Phlox of various kinds, the Rudbeckias, some of the Sedums, *Yucca baccata*, and *Y. harrimaniae*.

REGION 16

Region 16 is the central portion of the Great Plains, including the plains portions of Kansas, Oklahoma, and New Mexico; also portions in Colorado and Texas. It extends Eastward from about the 5000 foot contour on the West to the black soils on the East. The rainfall varies from 10 to 20 inches. The climate is warmer and has greater evaporation than region 15. It is the southern portion of the dry-farming area.

The plants succeeding in region 15 will grow here, together with many others that do not survive so much cold but have the same ability to withstand hot, dry winds.

REGION 17

Region 17 is the dry, hot portion of southwestern Texas, with little rainfall.

Only succulents will thrive here without irrigation, while with it the same plants that succeed in region 16 can be used, as well as those that grow in region 11 under irrigation.

REGION 18

Region 18 is the subhumid black-soils country lying just East of the dry farming area of the Northern Great Plains and is intermediate as to moisture between region 15 and the more humid area to the East of it. The Winters are very cold and dry.

The same types of plants succeed here as in region 15 with a little wider range of varieties, as there is a little more moisture.

REGION 19

Region 19 is the subhumid black-soils area of Kansas, Southern Nebraska, and most of Oklahoma. There is more moisture than in the dry farming country to the West of it and less than in the area farther East. It is a locality of sudden variation in Winter temperatures and of hot winds in Summer.

The plants that will succeed in region 15 will grow here, and, in addition, many more tender kinds, but owing to the dry winds the list is limited.

REGION 20

Region 20 is the subhumid or transition region of Central Texas with black and chocolate-colored soils. In moisture conditions it is intermediate between the dry farming regions farther West and the humid climate of Eastern Texas.

In addition to the plants that thrive in region 15 the Columbines, the Chrysanthemums, the Rosemallows or Hibiscus, and all the Sedums and Yuccas can be cultivated successfully.

REGION 21

Region 21 is in the Northern part of the prairie country, having a short growing season with frequent droughts of more than 30 days and cold Winters with drying winds. The rainfall is 20 to 30 inches, occurring mostly in the Summer.

The plants that succeed here are practically the same as those that thrive in region 15.

REGION 22

Region 22 is that portion of the prairie country having higher temperatures than region 21, but subject to similar cold drying winds in Winter. The rainfall is 30 to 40 inches.

The cold dry Winters prevent the successful cultivation of a large number of perennials, but those successful in region 15 with a few others thrive here.

REGION 23

Region 23 is the western part of the Great Lakes forest area. The Eastern portion is slightly warmer and more humid than the Western portion, the latter much resembling region 21.

Perennials that succeed in region 21 will grow here, together with many of those that thrive in region 26.

REGION 24

Region 24 is largely that part of the country influenced by the Great Lakes, lying East of Lake Michigan, extending South into Ohio and Eastward to Lake Ontario. There is considerable moisture in the atmosphere in addition to a rainfall of 30 to 40 inches rather well distributed through the year. The Winter temperatures are more moderate than in region 23, and there is usually a good snow covering giving protection to herbaceous perennials.

Nearly all the perennials adapted to cold countries do well here, as the Winter snows afford an excellent mulch. These plants include many that thrive in Western Europe as well as our native species. A large number are listed in Northern catalogs.

REGION 25

Region 25 includes the Ohio and lower Tennessee River valleys and the Ozark Mountain region. The Winter temperatures are rather moderate with much alternate freezing and thawing, while the Summer is warm with a 30-day drought often occurring near its close. The rainfall is 40 to 50 inches.

Here, too, a large number of perennials succeed, but they are somewhat different from those found in region 24, as the rock plants used in Northern gardens do not thrive so well as far South. Many plants not hardy farther North will grow here.

REGION 26

Region 26 includes the colder sections of the Eastern United States, comprising much of Maine, New Hampshire, and Vermont, the mountainous portions of New York, and a portion of Northern Michigan. It is characterized by cold Winters with heavy snowfall and short Summers of long days and cool nights. The rainfall is abundant, and the heavy snows afford excellent protection to herbaceous plants.

Most of the plants that succeed in region 27 will thrive here, as well as some alpine plants that do not grow so well farther South in low altitudes.

REGION 27

Region 27 is the Appalachian Mountain country, including much of New England and New York, most of Pennsylvania, and the mountainous portions of the States southward. The rainfall is abundant, usually from 35 to 50 inches, and is well distributed through the season. In the colder parts the snowfall is sufficient to give abundant protection to herbaceous plants.

A long list of perennials succeed here, but many alpine and those tender to cold are not among them. Some of the more hardy and vigorous are Achilleas, Aconites, Alyssums, Anemones, Asters, Columbines, Canterbury-bells, Irises, Bellflowers, Phlox, Daylilies, Chrysanthemums, Rosemallows, Delphiniums, Eulalias, many Ferns, Hollyhocks, Plantainlilies, Pinks, Peonies, Stonecrops, Rudbeckias and Yuccas.

REGION 28

Region 28 lies just east of region 27 and includes the Piedmont and some adjoining sections with similar growing conditions. It extends from Northern Alabama northeastward across the Carolinas and Virginia to New Jersey and the coast of Massachusetts. It is warmer than region 27, with abundant rainfall except in late Summer, when 30-day droughts often occur. The Winters are open, with much freezing and thawing, and there is but little snow protection to be relied upon.

Many of the plants succeeding here are very different from those that grow in region 27, as the alpine and subalpine plants that thrive in the cooler climate of region 27 will not grow here, while there are many distinctively Southern plants, including many bulbous ones, that succeed in this region.

REGION 29

Region 29 includes most of the cotton country, extending from what is known as East Texas eastward and northward to the Atlantic Ocean in North Carolina and Virginia. It lies between the Piedmont region and the swampy lower coastal plain that borders the Gulf of Mexico and the Atlantic Ocean.

The rainfall is abundant, being from 45 to 60 inches, and is well distributed, except toward the last of the rather warm Summer, when a long drought frequently occurs, particularly in the Western portion.

The perennials that thrive here are those native to this locality, together with those from warm countries. Many of the plants so commonly used in regions 24 and 27 are not suited to this warmer climate, while others are admirably adapted to these conditions, among which may be mentioned many species of Rosemallow, Hibiscus and Crinum.

REGION 30

Region 30 is the swampy coastal plain from Wilmington, N. C., southward along the Atlantic Ocean and westward along the Gulf of Mexico. It has moderate Summer temperatures with hot sunshine, short Winters, an abundance of rainfall (50 to 60 inches), except in the Texas portion, and is almost subtropical.

It is the region of the palmetto and the broadleaved evergreens. Plants whose roots would be killed by freezing and whose tops are injured by frost, such as Cannas, Crinums, the Amaryllis, some of the tender Lilies, and the tender Bamboos, thrive in this region. Some of the plants that succeed in cold climates also do well here, such as Daylilies, Plantainlilies, and Irises of many kinds.

REGION 31

Region 31 is Southern Florida, with the exception of the subtropical fringe. It is subject to annual frosts and has rather warm Summers and a rainfall of over 50 inches. The vegetation approaches the subtropical, Oranges, Palms and the Grevillea or Silk-oak succeeding.

In addition to many of the perennials suitable for regions 29 and even region 28, many of the greenhouse and tender bedding plants of the North are adapted to this region. It often becomes sufficiently cold to kill the tops of tender plants without killing their roots.

REGION 32

Region 32 is the tropical coast of Southern Florida. It has slight range of temperature with no frosts and a rainfall of 50 to 60 inches. Palms and Mangroves are the typical vegetation.

The perennials are those that are grown in greenhouses in the North, such as the Begonia, Heliotrope, Coleus, and similar plants



NOTEWORTHY PERENNIALS

ACANTHUS—(Bears-breech)

(a-kanth'-us. From Akanthos, a spine; many sorts have spiny leaves.)

In the design of the Corinthian columns, the Acanthus leaf has been used as the motif. Most of the sorts grown have deeply cut leaves, each division of which is often tipped with a spine. The leaves are often 2 feet long and a foot wide. The flower spikes often grow 3 feet high. The flowers are lipped and are furnished with a large, showy bract at the base.

Acanthus mollis, the Soft Acanthus, bears purple and white flowers. Its variety *latifolius*, the Broadleaf Acanthus, is more ornamental because of its larger leaves. This species blooms in August and September. It has deeply lobed leaves but unlike most other sorts they are not spiny toothed.

USES. The unusual character of the leaves makes these plants attractive as specimens in the perennial border, wild garden and for subtropical effects.

CULTURE. In the North they will need protection in Winter. They prefer a deep soil for they have extensive root systems. Poor drainage results in their freezing out.

PROPAGATION. These kinds are easily increased by division of the roots. Seeds are readily obtained. The seedlings may be planted out in places where they are to remain a few weeks after germinating.

ACHILLEA—Yarrow, (Milfoil), (Sweetmaudlin)

(a-kil-lee'-a. Achilles first used it in medicine.)

The Achilleas have proven themselves some of the most desirable plants for the garden, mainly because of their exceedingly free, yet, graceful habits of growth. They range in color from white to cerise pink and yellow, and are often combined with silvery white foliage.

The species *Achillea ptarmica florepleno*, The Pearl, has double flowers borne in dense heads of purest white. It somewhat resembles the pompon Chrysanthemums. Boule de Neige is not quite as large as The Pearl, but the centers of the flowers are fuller and this makes it



For cut flowers, the Sneezewort, *Achillea Perry White*, is most useful

appear of purer color. Perry White has much larger and more compact blooms than The Pearl, some of the flowers measuring 1 inch across.

A. millefolium is the common Yarrow, but its variety *A. m. rosea*, the Pink Yarrow (Rosy Milfoil), has handsome pink flowers and feathery foliage.

The Woolly Yarrow (Milfoil) (*A. tomentosa*) and the Golden, Noble or Fernleaf Yarrow, *A. filipendulina* (*eupatorium*), are yellow-flowered sorts; the former grows but a foot tall, the latter attains a height of 4 to 5 feet and has perpendicular sage-green leaves.

USES. All of the *Achilleas* are good to use as cut flowers and for the border. The varieties of *ptarmica* are especially good in cemeteries because they take care of themselves in the grass. They are often used in landscape work against a background of shrubbery and some of the dwarfier types are used in rockeries.

CULTURE. They are very easy to grow; in fact, they grow so rapidly that the plants should be divided and reset each Spring. Any soil will do although they thrive best in rich, well watered soil where plenty of sunshine is available. The Woolly Yarrow is considered difficult to transplant. Some of the taller Yarrows need a little support. This is best given by sticking a few twiggy branches into the soil, in which case the stems of the Yarrow are held up nicely.

PROPAGATION. If the seeds are sown early, the plants will bloom the first year. The large flowering clumps should be divided either in the Spring or Fall and this is the commoner method of increasing the stock.

ACONITUM—Monkshood, Wolfbane, (Helmet-flower)

(ak-oh-ny'-tum. Named because it is common near Acona.)

Under trees, in woodlands and even in semi-wild gardens, the Aconitums, when once established, enhance the stateliness and grandeur of a place as only a plant with tall spikes of cool blue flowers can. The flowers themselves are showy, shaped like a helmet or hood, from which the common name Monkshood is derived. The leaves are large and lustrous green, forming a dense mat, which throws long, compact stalks of white, blue, violet blue, white and lilac and yellow flowers. They grow from 3 feet to 6 feet tall and vary in season according to the species.

SPECIES. The common Monkshood or Aconite (*Aconitum napellus*) blooms early, has large, dark blue flowers and grows 5 feet to 6 feet high. A variety of this one has white flowers with flesh colored edges and another has decided pink markings on it, but in most places are not as good as the type.

Wolfbane (*A. lycoctonum*) blooms in June and July, is 4 feet high and has soft yellow flowers. The leaves are divided into 3 to 9 divisions.

The Azure Monkshood (*A. fischeri*) is the last one to bloom. It is 6 feet tall, has pale blue flowers and blooms in October. The leaves are three lobed or notched. *A. wilsoni* is a variety with deeper violet flowers. Bailey says that the classification is confused and the sorts usually cataloged as *A. autumnale*, *A. columbianum*, and *A. stoerkianum* are really variations of *A. fischeri*.

The Clambering Monkshood (*A. uncinatum*) is found from Pennsylvania to Wisconsin. It has a tendency to climb 2 to 5 feet. The leaves are 3 to 5 parted. The flowers are blue.

USES. The Monkshoods are planted among shrubbery and in borders, especially in combination with Madonna Lilies, white Phlox and Shasta Daisies. Most of the varieties are valuable to fill in vacant

spaces in the garden when the earlier blooming plants have passed. They are excellent for naturalizing in a woods.

Since the roots are poisonous, one should be careful to avoid planting them near a vegetable garden where they might be mistaken for another plant, or where children could get to them.

The effect of the glossy leaves is very striking, especially of *A. fischeri*. If undisturbed in the woods, they will naturalize themselves very easily. Aconitums should always be planted in masses.

CULTURE. Aconitums grow in almost any good garden soil, either in sun or partial shade. In the hotter and dryer parts of the United States the leaves often burn, becoming black as though diseased. When the ground is being prepared for planting, one should dig deeply and use plenty of well-decayed cow manure. Good culture, an abundance of water and liberal feeding add greatly. Do not transplant unless clumps are crowded or are sickly.



Aconitum napellus
(Monkshood) is the
earlier species of this
glorious genus



Aconitum fischeri. A grand late flowering
blue perennial, and not harmed by or-
dinary frosts

PROPAGATION. It is a rather slow process to raise them from seed since it takes twenty days for the seed to germinate. Even then germination is poor. Old seed is worthless. However, they are propagated by division of the roots which is slow. They grow best when left undisturbed for years.

ACTEA—Baneberry

(ak'-tee-a. From *Aktata*, the Elm; some species have elmlike leaves.)

The Baneberries constitute a group of wild flowers which are grown in gardens because of their berries.

Actea alba, the White Baneberry, grows to a height of 18 inches. The flowers are white, produced in dense racemes in May. Throughout the Summer the racemes lengthen and white berries form. Each berry has a dark purple eye and a stout, jointed pedicel, or stem. The leaves are by some compared to the Maple.

Actea rubra, the Red Baneberry, has shorter, denser spikes of white flowers and the red berries are produced on slender pedicels

Actea spicata, the Black Baneberry (Herb-Christopher, is a European and Japanese sort with bluish white flowers and purple black berries.

USES. These are common wildflowers of the North. The White Baneberry even extends as far South as Georgia. They prefer the shade of woods and a leafmold soil.

PROPAGATION. These sorts self sow their seeds in Nature; therefore, Autumn sowing is advised. Of course, they may be divided in earliest Spring.

ADLUMIA—Mountain-fringe, Allegheny-vine, Climbing-fumitory

(ad-lum'-i-a. Named for John Adlum, American Grape experimenter.)

This dainty biennial vine, native as it is in our own country, is little known. The leaves are fine and resemble the foliage of a Maiden-hair Fern. These plants are related to the Bleedingheart and Dutchmans-breeches and the flowers, which are white or purplish, are tubular and unmistakably resemble the Bleedingheart, although they are tiny. *Adlumia fungosa* (*cirrhusa*) is the only species cultivated.

USES. Where gracefulness is wanted in a vine, the *Adlumia* supplies the need. It is effectively planted at the base of an evergreen tree



The Allegheny-vine or Adlumia, a vine of extreme grace bearing dainty flowers and leaves

upon which it can climb. The growth is so slender and the foliage so light that there is no danger that the shade which it casts will harm the tree in any way. It merely casts a veil of loveliness over a portion of the evergreen. It may be used for trellises and arbors of all sorts because it attains a height of 15 feet.

CULTURE AND PROPAGATION. The seed is sown in early Spring. Generally the plants remain low and bushy for the first year. The second year they grow rapidly, produce an abundance of seed and then die. Fortunately the seeds self-sow and when one has started the Adlumias, they generally persist year after year from volunteer plants.

The plants do not tolerate open, windswept places and enjoy a rich, rather moist soil, and are best when not exposed to the full sun all day.

The seeds are best sown where they are to grow, as the plants transplant with difficulty.

AEGOPODIUM—Goutweed (Bishops-weed)

(ee-goh-poh'-di-um. Name derived from *aix*, goat, and *podium*, a little foot, probably from the shape of the leaflets.)

Wherever one goes, through many gardens and even in some woods, this green and yellow variegated plant has spread its roots until it has almost come to be considered a troublesome weed by many people, although in its place it is of great value. The white flower is rather inconspicuous and does not show up well against the light colored leaves. *Aegopodium podagraria* is a small creeping plant with white margined leaves.

USES. The Goutweed makes a beautiful border for a bed of shrubs or flowers, if it is not allowed to spread too freely. It grows to best advantage when used to cover waste ground or shady places where grass will not grow. It is well used in the narrow strips of soil between the foundation wall and a sidewalk.

CULTURE. It thrives in any kind of soil.

PROPAGATION. By seeds, and division.

AETHIONEMA— Stonecress

(ee-thi-on-ee'-ma. From *aitho*, to scorch, and *nema*, a filament; alluding to the burnt appearance of the stamens.)

The Stonecress is related to the Rockcress and is valued in the rock garden for its masses of bright rose and lilac flowers. *Aethionema grandiflorum*, the Persian Stonecress, has greyish leaves and grows erect, as tall as 18 inches. The flowers are in elongating terminal racemes, rose colored, four petaled.



The Stonecress, *Aethionema*, is a popular rockery plant with those who know it

A. coridifolium, the Lebanon S., is prostrate, seldom 3 inches tall. The foliage is quite blue. The flowers are soft salmon pink. Also listed as *A. pulchellum*, according to Edith Banghardt, and frequently called *Iberis jacunda*.

The Warley Rose is apparently an offspring from *A. coridifolium* which appeared in the garden of Gertrude Jekyll. It is a superior sort with pale pink flowers.

USE AND CULTURE. Carl Purdy, in *Horticulture*, tells us that the Stonecresses are amongst the very best of the rock plants and they are specially good for the warmest and sunniest sections of any rockery, as they are very drought resistant. They will also fill a place in the marginal planting of the mixed border both for their beauty and for their staying qualities. All of them are natives of the dry regions of Asia Minor and on to Persia, and all are especially deep rooted and averse to wet or very heavy soils. They are alike, too, in being lime lovers. Give any of them a rocky or gritty soil of some depth and they will develop a charming individuality. They are really little shrubs and take different characteristic shapes according to the species. They come a little later than the Alyssum and Aubrietias and combine nicely with Veronicas and *Dianthus alpinus*. The plants should be cut back slightly after blooming.

PROPAGATION. Sow seeds in Spring. Make cuttings in Summer.

AJUGA—Bugle (Carpenters-herb)

(a-jeu'-ga or a'-ju-ga. Name of purely botanical origin, from *a*, not, and *zuga*, a yoke; in reference to calyx being one-leaved.)

For creeping over the soil in shaded places the Bugle is excellent. Two sorts are commonly cataloged. *Ajuga reptans rubra*, Purpleleaf Bugle, has deep purplish blue flowers and purplish leaves and is prostrate in habit; *A. genevensis*, Geneva Bugle, is more upright in growth and bears flowers varying in color from dull red to white and blue. There is a variegated form of the Bugle in which the leaves are mottled with yellow. They flower in May. They somewhat resemble *Prunella* or Selfheal.

USE. It is an excellent carpet plant and is often used in cemeteries. When clipped into form it serves as an excellent edging plant. Rockeries are often planted with the Ajuga, but the plants take possession of

such spots. The plants will grow beneath trees where a lawn is difficult to establish.

CULTURE AND PROPAGATION. The plants, being of a spreading habit, are easily divided either in Spring or Fall. Seeds grow readily.

ALTHAEA—Hollyhock

(al'-the-a. From *altheo*—to cure; referring to healing qualities.)

A constant, old fashioned garden favorite ! Hollyhocks have been universally admired for hundreds of years. They are stately, majestic, towering plants that add beauty wherever they are grown. What other plant has so stately a habit or so many clear, lovely colors ? In single plants or in masses against walls or buildings, in groups at the back or rear of the perennial border, interspersed with low shrubbery or in bold masses along drives or walks, they are alike effective. Many fine plants will give their fullest effects the first year, so they are planted to advantage in the newly made garden when the trees and



Tall Hollyhocks to greet us through the open window

shrubs are low and the general effect is too bare of color and foliage. There are singles and doubles. The doubles are popular, but the singles are always admired because of their simple beauty and individuality. A group of well grown Hollyhocks in bloom is worth going to see. It is really the color that we look for, because the leaves are large, coarse and grow mostly in clumps at the base of the plant. The long spikes of flowers grow from 5 feet to 8 feet high and there are usually from five to nine blossoms in bloom on each well grown stalk. The average size is about 2 inches or 3 inches across, but 5-inch blooms can be had if good attention is given. The colors range from white to almost black and include shades of pink, flesh, rose pink, salmon rose, golden yellow, canary yellow, dark red, purple crimson, dark maroon, white and combinations of practically all these colors with either white centers or white margins. The blooming period is from late June through September. Fringed petaled sorts are cataloged as Allegheny Hollyhocks and are exquisite. There are also annual sorts which may be depended upon to bloom the same year they are sown.

The Marshmallow, *Althaea officinalis*, is found in marshes of North America where it has escaped from gardens. The flowers are 1 inch across, rose colored, in clusters in axils of the leaves. The leaves are hairy, often lobed.

USES. Hollyhocks at the present time have a great landscape value to hide unsightly places, to work in the border, or among the trees and shrubs. They are also used for cut flowers, but wilt very rapidly. It is suggested that the stems be dipped in nitric acid.

CULTURE. They require a deeply dug, well drained soil made up of equal portions of good loam and leafmold. Well decayed manure is good also to mix in the soil. They should be planted in a warm place and given plenty of water during dry weather.

PROPAGATION. As the seeds ripen in August they should be sown in light soil and the seedlings grown in coldframes during the Winter. The ground should be well prepared and the plants put in just as early as the ground can be worked. Hollyhocks self-sow very rapidly.

DISEASES. Hollyhocks, where grown for a number of years in the same place, are troubled with a rust. It causes little trouble, however, among vigorous young plants. A mixture of lime and sulphur blown under the leaves will prevent any serious outbreak. Bordeaux mixture is also effective. Badly infested plants should be dug and burned. Keep down the growth of the Mallowlike weeds. Much of the trouble with the rust is eliminated if the seed is sown as advised in August instead of Spring.



The Dwarf Goldentuft, *Alyssum saxatile compactum*, is welcome in the Spring rock garden

**ALYSSUM—Goldentuft, (Madwort), (Basket-of-gold),
(Gold-dust), (Rockmadwort)**

(al-is/-sum. Named from *a*, not, and *lyssa*, rage; in reference to a legend that the plant allays anger.)

The various Alyssums have been known for a long time as some of the best edging plants for borders of all kinds. They have been combined with Darwin Tulips, with Rockcress (*Arabis*) and the False-Wallcress (*Aubrieta*), and also with shrubs, such as the Spireas and Hydrangeas. Just as soon as Winter is over, the Alyssum makes preparations to grow, and within a month it presents a mass of yellow flowers. It is in bloom from early Spring through June and grows from 4 inches to 12 inches high. The Dwarf Goldentuft (*Alyssum saxatile*

compactum), is of a dwarf, shrubby nature with greyish green leaves and dense heads of brilliant golden yellow flowers, and is one of the best yellow, low growing plants of early Spring. The variety *A. citrinum* is of a pale citron color and more refined. There is also a double form with yellow flowers.

The Yellowhead Alyssum or Madwort (*A. argenteum* or *rostratum*) has golden yellow flowers, grows about 12 inches high and blooms somewhat later than the others.

Some less common species are discussed by R. J. M. S. in "*Gardening Illustrated*":

"A very distinct plant is *Alyssum spinosum*, a dense spiny shrublet with silver-gray foliage and white flowers. Its variety *roseum* has pale washy-pink flowers. The type may be readily increased by seed, and should be given a dry, sunny position in the rockery. Among alpine species, *A. montanum* is the one most commonly met with in gardens. It has grey-green mats of foliage and lax heads of light yellow notched flowers. It occurs in many of the European alpine ranges and is quite happy and content under cultivation, and flowers very freely. *Alyssum alpestre*, another mountain species, is greyer in foliage, but not so compact in habit and not so generally useful. *A. serpyllifolium* is a charming little prostrate plant with tiny silver-grey spoon-shaped leaves and light yellow flowers. It occurs on rocks at high elevations on the Mont Cenis, Pyrenees, etc., and should be given a choice, well-drained position on the rockery with plenty of grit. *A. amaranthifolium* produces prostrate mats of narrow, oval, sharply pointed grey leaves and flat heads of good yellow flowers. It is one of the first to bloom. *A. podolicum* is a little Russian species with green foliage and small white flowers, dainty but not exciting. *A. creticum*, from high elevations in Crete, is more woody and upright, and has fine yellow flowers. It is rare in cultivation. *A. gemonense* is closely allied to *A. saxatile*, while *A. moellendorffianum*, from Bosnia, is near *A. montanum*, and in view of its name we shall probably prefer to write labels for the latter species. There are many other Alyssums, which are largely of botanical interest only, or only slightly distinct from the above kinds and which, for garden purposes, are not greatly interesting."

USES. The Alyssums are indispensable plants for the rock garden, especially where plants are needed to droop over the rocks. They are planted along sidewalks, in hanging baskets, and as groups or edges for the border. The annuals, being sweet scented, are also used for cutting purposes, and are good for Winter blooming.

CULTURE. They are very easy to grow, requiring some limestone, a well drained soil and a sunny situation. They spread rapidly and bloom very freely.

PROPAGATION. Seeds should be sown in August and wintered over in a light, airy position until large enough to be planted out, if good sized plants are desired in the Spring. The double sorts cannot be grown from seeds and must be propagated from cuttings. The roots of the plant can also be divided.

AMSONIA

(am-soh'-ni-a. Named for Charles Amson, physician of the 18th century.)

A lovely light blue perennial has apparently gone unnoticed by many gardeners. It is *Amsonia tabernaemontana*, the Willow A., a native from Pennsylvania to Florida and Texas. The plants are 2 to 3 feet tall. The tiny light clear blue flowers are produced in terminal panicles in May and June. The leaves are alternate, narrow, willowlike, and are held late upon the plants. The plants are related to Periwinkle,

USES. It is adapted to semi-shaded spots. The writer has seen these lovely flowers at their best at Spring Grove Cemetery, Cincinnati, Ohio, where they make a sheet of blue beneath low trees.

PROPAGATION. Divide the clumps in early Spring. Seed may be sown.

ANCHUSA—Bugloss, (Alkanet), (Italian Borage) (Summer Forget-me-not)

(an-keu'-za. Name from Anchousa, a cosmetic paint formerly made from *A. tinctoria*.)

One of the colors which all amateur gardeners wish is a good, strong blue, one which does not fade easily but which holds its own. Anchusas when planted in large masses, appear as a misty sea of deep blue when in bloom. Although possessing nothing to recommend it as a cut flower, it is a tall growing blue perennial that is deserving of a place in every garden. The plants of *Anchusa azurea (italica)* Dropmore variety, which is the commonest one grown, attains a height of 3 feet to 5 feet, and blooms during June and July. The leaves are very large, heavy and hairy. The flowering branches are sent out in all directions from the plant and bear large, loose clusters of giant Forget-me-nots of dark turquoise blue. Many have a white eye. Variety Opal is pale blue. The blooming season can be easily lengthened by cutting down the taller sprays when the flowers begin to fade. This will cause smaller spikes to appear which will continue blooming through September. They are of such beauty and are so attractive in early Spring when so few blue flowers are in sight, that they have proven very popular. The bees also delight in visiting them.

The so-called Siberian or Forget-me-not Bugloss, *A. myosotidiflora*, has large, heart-shaped leaves and large sprays of tiny blue flowers opening in May or June. It is called *Brunnera macrophylla* by Bailey.

A sort with blue flowers with a white tube and yellow throat, the Early Bugloss, *A. barrelieri*, is frequently planted. It grows about 2 feet tall.

The above sorts are perennials but there is a biennial used for rock gardens which is sometimes seen. It is *A. capensis*, the Cape B. The leaves are narrowly lanceolate. The tiny blue flowers are margined with red. They bloom in August and continue through September. It is rather tender in the colder states.

USES. Anchusas have proven an invaluable plant for the border, and are used in woodlands to a certain extent. *A. myosotidiflora* and *A. capensis* are used effectively in rock gardens, especially in shady nooks, where they bloom all Summer.

CULTURE. Any good garden soil, plenty of sunshine, and a well drained situation suit them. Most of the plants become fully established during the second or third year. They are moisture loving plants and should be given copious soakings of water during dry spells. The plants should be staked during the flowering season.

PROPAGATION. Seeds and division of the plant. Anchusas self-sow very readily. The roots of the Dropmore Bugloss are very juicy and brittle so that when the plants are dug, they are frequently broken. Each root allowed to remain in the soil will produce a new plant, a trait considered to be objectionable to many persons.

ANDROSACE—Rockjasmine

(an-dros'-a-see. From *aner*, a man, and *sakos*, a buckler; in reference to the anther resembling an ancient buckler.)

Mrs. Louise Beebe Wilder in *House and Garden* writes:

"Many years ago I received a small package. Investigation disclosed a cardboard box in which were seen two little gray rosettes, like a pair of self-contained kittens, seated upon a bed of moss. Beside them lay a label which carried the legend '*Androsace sarmentosa* var. *chumbyi*, Himalayas.' This was my first introduction to the Androsaces.

"Since then I have learned a good deal about this family, some of it delightful, some of it baffling, all of it interesting. They have always seemed to me among the most interesting and lovely of alpine plants. One thing about them, at least about many of them, that is very gratifying is that they like American conditions. They do not turn up their toes and die in the face of our burning suns, our drought-ridden Summers. On the contrary, they seem to like them. On the whole I think we have less trouble with this race than do our accomplished British brethren. Damp is their worst enemy and we have less of this scourge than prevails in the British Isles, and our cold Winters are a tonic to their little alpine systems. Nevertheless there are some that will try our utmost skill and even then elude us."

Androsace lanuginosa bears long, trailing shoots clad with silvery gray, silken leaves and Verbenalike heads of rose lilac bloom which appear in Summer and again in the Fall.

Androsace sarmentosa forms neat cushions of growth, all the leaves being in a rosette, white-hairy when young. The rose colored flowers are produced in umbels on stems 4 inches tall. Var. *chumbyi* makes very dense rosettes and the leaves are very woolly and pointed. It is a hardy and adaptable sort.

CULTURE. The Rockjasmies like sun although the shade cast by a rock is appreciated. Plant in a sandy soil or a moraine spot in the rockery. They all like limestone and some chips should be mixed with the soil. The plants are said to be sensitive to smoke in the air of cities. Mulch the plants with chips of stone. They are frequently protected with a pane of glass during the Winter.

PROPAGATION. Of the *Sarmentosa* group Mrs. Wilder writes:

"All these plants throw out naked Strawberry-like runners after flowering, at the ends of which form new rosettes which root and continue so to spread the sphere of their influence. To hasten matters you may peg these runners down to the ground with a wire hairpin, if you are of the sex and period to have about you this handy implement; if not, a stone will do. Where they are happy, wide mats are soon made which are most effective during their blossoming period and charming at any season in their soft grayness. The young rosettes may be detached from the parent mat at almost any season and started upon careers of their own (after they are rooted, of course), so that increasing our stock of them is a very easy matter indeed. Once yearly, preferably in the Spring, but if it is overlooked at that season it should be done in the Fall; the mats of this type of *Androsace* should be treated to a generous topdressing of gritty loam neatly worked in among the crowding rosettes. If this is neglected the plants exhaust the soil quickly, and it often happens as well that the earth is washed away from about the roots and the vitality of the plant is impaired when they have nothing to feed upon. Occasionally the whole mat should be broken up and replanted. This need be done, however, only when the mat of rosettes begin to look shabby.

ANEMONE—(Windflower)

(an-em'-on-ee. From *anemos*, the wind; refers to fact that many grow in windy, exposed places.)

There are many kinds of Anemones found growing in the cultivated gardens, as well as in the wild of our woods. Some are among the first flowers to bloom along the river banks in the Spring and some bloom even after the early frosts of Autumn have come. All thrive under cool conditions and in many cases the ground should be covered with leafmold to keep it cool. The early blooming varieties such as the European Pasqueflower (*Anemone pulsatilla*) grow about 9 inches

high and the purplish flowers are borne in profusion during April. The Pasqueflower is followed by seed pods covered with silky hairs which stay on the plant for a considerable time.

But of all the Windflowers the Japanese Anemone (*A. japonica*) is the largest and the best one to grow for our gardens. They begin blooming early in Fall and last until freezing weather cuts them down when only the Cosmos, Dahlias and Chrysanthemums are left. The flowers are pure white, light and dark pink; they grow from 2 feet to 3 feet tall. They seem to thrive best when planted in front of shrubbery, evergreens or walls facing the South where they are protected



Japanese Anemones, one of the charming late flowers

from the northern winds. Japanese Anemones have a leathery foliage which is dark green on the surface and light green on the underside. The flower spikes grow straight and erect from the center of the plant and bear many large, saucer-shaped flowers with a large center of yellow pollen masses. The good varieties are: Whirlwind, white; Queen Charlotte, pink; Geante des Blanchés, white, and Kriemhilde, rose. There are also rosy reds and crimsons. *A. hupehensis* resembles the *A. japonica* but is smaller and bears rose colored flowers in early Autumn.

USES. Anemones are charming when used as cut flowers especially when combined with the fine ferns or *Asparagus plumosus*. The dwarf varieties which bloom in the Spring are used in rock gardens, while the others are used in borders. The Japanese Anemones bloom at a time when flowers are scarce and with slight protection from the early frosts, they will bloom two or three weeks after many other plants are killed.

CULTURE. All Anemones like a rich, moist soil, one which is well drained in Winter. The early dwarf varieties will thrive in shady places, but the Japanese Windflowers need sunshine but not in the open. They like lots of water and should be thoroughly soaked with water during a dry season. They need some Winter protection, such as a good covering of leaves. If the plants are moved, it should be in the Spring, but it is best to let them grow undisturbed in the border for a number of years. The ground should be worked deeply and well manured.

PROPAGATION. The seed should be sown in the Spring and the plants spaced at 18 inches apart. The best method is to divide the roots in the early Spring. Save even the smallest roots when the plant is dug, because if they are cut into 2 inch lengths and placed in a sandy soil they will produce little plants. When well started these new plants may be placed in their permanent quarters.

ANTHEMIS—Camomile (Golden-marguerite)

(an'-them-is. Name from Anthemon, a flower.)

This hardy Camomile is a sturdy, very easily grown plant. It is about 1 foot or 1½ feet high, very bushy, with finely cut foliage somewhat resembling the Pyrethrums, and bears Daisylike, yellow flowers in great profusion from June until Fall. The colors range from purest white to a rich yellow. *Anthemis tinctoria kelwayi* is the best one for gardens because it has a particularly long flowering season. Its

flowers are yellow. *A. montana*, a form of *A. tinctoria*, has creamy white flowers.

USES. The Camomiles are splendid when planted in masses and are most excellent for hot, dry places. Some of the dwarf forms are used in rockwork. They are used for cut flowers to a great extent.

CULTURE. These flowers will grow in almost any kind of soil; in fact, they will succeed in the poorest clay soil. They like a sunny location, although they will bloom in partial shade. The plants should be divided often as they grow and spread very rapidly. It must be frankly admitted that they are likely to overrun a small garden. They must be watched and the myriad of seedlings ruthlessly destroyed.

PROPAGATION. They are easily grown from seed or by division of the roots.

AQUILEGIA—Columbine

(ak-wi-leej'-i-a. The names of this flower are interesting to the garden lover with imagination. It is called Columbine, some say, because the flowers appear like the cap of a court jester; others have suggested that the spurs of the flowers cause them to appear like a ring of doves (*Colombo*) about a dish. And its name *Aquilegia*, is it from *aqua legus*, to draw water, or from *aquila*, an eagle? Both derivations would be apt, for the *Aquilegia* appears to draw water from the rocks upon which it grows in the wild and the shape of the flowers suggests the talons of an eagle.)

Doth the rock burst into bloom
 So the bees seek its perfume?
 Is there somewhere in its breast
 A spirit roving without rest
 That doth fabricate
 This wall of slate
 Into forms so complicate
 That but a breath
 Would bring death
 They are so frail,
 So thinly frail?
 Ah, the wonder that has run
 That some sweet alchemy has won—
 Kissed together stone and sun!
 O Columbine, the world is thine!

—L. H. BAILEY.

SPECIES. American Columbine (*Aquilegia canadensis*). This is the common species native to the Eastern states. The flowers are red and yellow, and the spurs are medium short. It increases rapidly by self sowing its seeds.

Colorado or Rocky Mountain Columbine (*A. caerulea*). A most beautiful sort which in its wild form has white petals and usually white

sepals and long blue spurs. It is a native of the Western States and is found at elevations of from 7,000 to 10,000 feet. As a parent it has produced many excellent white, pink and blue varieties.

Golden Columbine (*A. chrysantha*). A yellow sort with long spurs, blooming somewhat later than the other sorts. It has been much used as a parent for long-spurred hybrids.

European Columbine (*A. vulgaris*). This is a European species with bright purple, blue, or lilac flowers with short spurs. Its white form, Munstead White or *nivea* is most commonly grown. It is a dwarf sort, 1½ feet tall and with stout, curved spurs. This variety has the best foliage of any Columbine.

USES. Most species are excellent for the rock garden, as well as for the herbaceous border, where they make clumps sometimes 2 feet in diameter. It is difficult to arrange Columbines as cut flowers, they seem to strangle each other. When a truly exquisite effect is desired, cut a single truss of bloom and place it in a vase by itself.



The Yellow Columbine is a noted parent of many lovely hybrids

CULTURE AND PROPAGATION. Aquilegias bloom in from 12 to 15 months from seed; in other words, they rarely or never bloom the first year when the seed is sown in the open border. When sown in August of one year they will bloom nicely the next year. The seedlings prefer a warm, sandy soil. The addition of leafmold to heavy clay soils is preferable to using manure.

The seed sometimes germinates irregularly. The plants make little growth during the hot Summer from Spring-sown seed. Large plants may be divided in September.

It might be advisable for the amateur gardener to buy plants of the various sorts which, if planted together, will cross to form many hybrids. On the other hand, if one wishes to keep them pure, he should not plant the various sorts together.

Most Columbines do well in the sun but will stand some shade.

ARABIS—Rockcress (Wallcress)

(ar'-a-bis. From Arabia, in reference to dry places where many sorts grow rather than the country of Arabia.)

The Rockcress is a small, white, four-petaled flower and its masses of snowy bloom early in the Spring contrast beautifully with the Dwarf Goldentuft (*Alyssum saxatile compactum*) and the blue False-wallcress (*Aubrieta*). It blooms very soon after the snow disappears and the flowers are so numerous that when a plant is in bloom, no foliage is visible. The foliage is gray and the plant attains a height of 6 inches. It is of a spreading nature and the stems form a dense mat about a foot across which blooms continuously from very early Spring through May. *Arabis albida* is the commonest form grown but *A. alpina*, a less hairy sort, is a better bloomer. Both have white flowers. There is a soft pink sort (*A. aubrietioides*) which sometimes winterkills.

USES. It is a splendid rock garden plant, growing where it will droop over the rocks. In borders it should be used to cover bare spots. The flowers are sweet scented and are valuable for cutting purposes. It is a neat plant wherever grown.

CULTURE. Any good garden soil will do, provided it is loose and open. Arabis is a drought-resistant plant, does not need much water, but requires lots of sun and heat. After blooming the plants should be cut back thus causing them to branch freely and form better plants for the next year's bloom. *A. aubrietioides* is best wintered in a cold-frame.

PROPAGATION. Rockcress is propagated by seeds or by dividing the plants or by rooting cuttings of the trailing shoots in late Spring.



Arabis or Rockcress. Masses of white flowers in a rockery or border are attractive

ARENARIA (Sagina)—Sandwort

(air-ee-nair'-i-a. From *arena*, sand, in reference to the places where the plants grow.)

The Sandworts are not as widely used in rockeries as many other less worthy subjects of easy culture.

One of the best is the Mountain Sandwort, *Arenaria montana*, which grows 4 inches tall, has narrow leaves, with white flowers in late May borne in such profusion that few other plants can compete with it in blossoming.

Showy S., *Arenaria grandiflora*, although sometimes considered a variety of *A. montana*, is a far different plant, with long spreading shoots and fewer flowers.

Corsican S., *Arenaria balearica*. This tiny carpet plant makes a sod of light green foliage studded here and there with white stars. It is advised for the joints of walks, for steps. It is not extremely hardy, likes an abundance of rain, and tolerates shade.

Tufted S., *A. verna* (*caespitosa*) (*Sagina glabra*). Less exacting in requirements, this sort tolerates both sun and shade. Its growth is too rampant for a refined rock garden but ideal for moist walls, stepping stones, and ground cover.

CULTURE. The various sorts prefer the lighter range of soils. They need perfect drainage in Winter and a light Winter protection.

PROPAGATION. They spread rapidly and sorts such as *A. verna* should be kept out of the rock garden lest it crowd out the daintier gems.

Many sorts self sow their seeds.

Cuttings in early Autumn can be easily rooted.

ARMERIA (See Statice, page 243)

ARTEMISIA—Wormwood, Mugwort, Southernwood, (Mountain-fringe), (Old-man), (Old-woman), (Lads-love)

(ar-te-miz'-i-a. Artemis is one of the names for Diana. Another explanation relates that the *Artemisias* derived their name from Artemisia, the beautiful wife of King Mausolus. The magnificent tomb she erected to his memory at Halicarnassus has given the name mausoleum to every elaborate tomb from that day to this.)

This group of plants, as a whole, is not generally valued for its flowers, but all have very ornamental foliage. The Sagebrush is really an Artemisia (*A. tridentata*). The plants are almost as hardy as Oaks yet are very attractive when in bloom from August until frost time. The flowers are borne on long, graceful stems, divided like a plume, and are either light creamy or yellowish white in color. The foliage is very finely cut and varies from light gray to dark green.

SPECIES. Almond- or Hawthorn-scented Mugwort, *A. lactiflora*, is one of the good sorts which grows 5 feet high. Its fragrant flowers are greenish white, produced in late Summer and combine well with Goldenglow, Buddleia, Hardy Asters, Boltonia, Helianthus and many other of the taller Fall blooming perennials.

Southernwood, Old-man (*A. abrotanum*) is one of the old fashioned border plants. It has yellowish white flowers and is usually grown for



Artemisia lactiflora sprays. A tall perennial which does not need a stake

its handsome dark green, pleasant scented leaves which are so deeply cut that they appear threadlike.

Wormwood, *A. absinthium*. See page 176 under Herbs.

Beach W., Old-woman (*A. stelleriana*) is of creeping habit with silvery white foliage and is one of the showiest of this type of border plants. It grows rapidly and soon covers a large space.

Cudweed W. (*A. purshiana*) grows about 1½ feet high and has white foliage.

Another white foliage sort has gained considerable prominence of late; it is known as Silver King Artemisia and is *A. albula* according to Bailey. It is a native of Texas, Colorado, and Southern California, but is hardy in the North. It has the advantage that it does not wilt

noticeably. It grows 2 to 3 feet tall and may be dried to be used as an everlasting. Several authors have called this *A. gnaphaloides* which differs in having simple oblanceolate leaves whereas *A. albula* has basal leaves which are lobed into three to five broad short lobes.

USES. Old-woman is much used for carpeting beds or borders. It is good also for the rock garden. The taller plants such as *A. lactiflora* are used to fill in the shrubbery or as backgrounds or hedges for the lower growing flowers. Although tall, the plants seldom need staking. The foliage and flowers are sweetly scented and adapt themselves well to pot culture and as such are as decorative as many of the Acacias which are prized so much. The blooms also make attractive cut flowers and last well.

CULTURE. Artemisias, especially *A. lactiflora*, like soil which is moist, and it must be rather rich in order to produce good blooms. Free watering and soapsuds have been found to agree with them. They like sun.

PROPAGATION. They may be grown from seeds, but are usually propagated by division or by cuttings.

ARUNCUS—Goatsbeard

(a-run'-kus. The Greek word for a goat's beard.)

Aruncus sylvester, Goatsbeard, grows 5 feet to 7 feet tall and has feathery white flowers produced in small spikes making a wide angle with the main stem and forming large heads of bloom. It blooms from June to July. It is a native of North America, Europe and Asia. This is the *Spiraea aruncus* found in the catalogs.

USE. It is especially useful for the borders of streams in half shaded places and serves as a good background plant.

PROPAGATION. Seeds grow easily. Some plants are male plants and produce no seed.

The clumps may be divided in the Spring.

ASCLEPIAS—Milkweed, Butterflyweed, (Pleurisy-root), (Swallow-wort)

(as-klee'-pi-as. Ancient Greek name.)

If the Butterflyweed (*Asclepias tuberosa*) were a rare exotic perhaps we would build greenhouses in which to grow it, but because it is commonly found along the parched roadsides, we pass it quite unnoticed.



Aruncus sylvestris or Goatsbeard, forming feathery masses of white flowers

It inhabits the sandy hills and sunny roads from Ontario to Arizona and the Gulf of Mexico.

The flowers of the Butterflyweed are generally brilliant orange but less often a deep scarlet. They come in Midsummer, that difficult garden season when all else is suffering from drought and heat.

Butterflyweed it truly is! At all times during its blooming season it is covered with all sorts of butterflies and other showy insects in search of sweet nectar but they pay dearly for it. Dr. William Showalter tells the story:

"The alighting place where these animated aeros effect their landings is decidedly smooth and slippery, and the arriving guest finds himself on a surface which makes a newly waxed ballroom floor seem like a stony pathway in comparison. As he does a combination of the tango, the fox-trot, and the jig, trying to find a stable footing, one foot, or mayhap two, slips into a little slot, which holds fast. While wriggling around to get loose, his foot slips down farther into the slot. A sharp jerk releases the foot, if the insect is strong enough, but not until a little pair of pollen saddle-bags has been bound to it. Bumblebees sometimes get away from a plant with half a dozen of these little saddle-bags hanging to their legs."



Flower of a Milkweed

Because the Indians used the Butterflyweed for pleurisy, it has often been called Pleurisy-root. Although related to the Milkweeds, the stems contain but little milk.

The Swamp Milkweed (*A. incarnata*) is splendid for boggy gardens. It has narrower leaves and clearer pink flowers than the Common Milkweed (*A. syriaca*).

A splendid sort is grown in the South known as *A. curassavica*, the Bloodflower. It grows 3 feet tall with long, narrow, glossy leaves. The flowers are scarlet, tinted orange, with a row of five erect petals which are a vivid orange.

USES. The Butterflyweed is nice for sunny spots in the rockery or border. When found wild they are blooming when many of the surrounding plants are dried up.

CULTURE. These plants are long lived and capable of taking care of themselves without any attention. They freeze out in heavy soil and therefore should have sandy, well drained soil in full sunlight. The *Asclepias* is a deep rooting plant and dislikes removal very much. One should be careful that it has completed its growth and every root should be saved, if the plants are to be transplanted from one place to another. Transplanting is usually considered difficult, but many persons have reported success if the hole is filled with sand.



Butterflyweed or *Asclepias tuberosa*. These orange red flowers brighten the dry spots on banks or in the border

PROPAGATION. Raising from seeds is the most certain method of propagation. Sow only a few seeds in a pot of rather firm soil, and allow the young plants, which grow slowly, to remain in these pots for at least a year before setting them out.

T. H. Everett describes the propagation of the tender *A. curassavica* for Northern gardens in *Horticulture*:

"It is, of course, a perennial, but I successfully treat it as a halfhardy annual, raising it from seeds sown under glass early in the year. The plants are grown on under cool greenhouse conditions and planted from 4 inch pots in groups in the flower border, where they make a brave show from mid-August onwards. I also find it convenient to grow a batch of this plant on in 5 inch pots, and when they bloom I plant them out to fill blanks in the border.

"As a decorative pot plant this subject possesses decided merits, and when used for this purpose three plants in a 6 inch pot are effective. The general appearance of the umbel of flower will perhaps be best appreciated if I say that to the casual observer it strongly resembles that of the rich orange *Lantana* which is somewhat commonly grown."

ASPERULA—Woodruff, (Waldmeister), (Squinancywort)

(as-per'-eu-la. From the Latin word *asper* or rough, in reference to the rough leaves.)

Sweet Woodruff (*Asperula odorata*) is a small growing, graceful, sweet scented herb with square stems. It has small, white flowers and deep green, whorled foliage. The flowers and leaves when dried have an odor like new hay and when laid among clothes, perfume them and keep away insects. It grows from 6 inches to 8 inches high and the small flowers appearing among the foliage make an exceedingly pretty picture, inasmuch as the foliage itself is very attractive.

A. odorata has leaves in whorls of eight, whereas *A. hexaphylla* has leaves in whorls of six and the plants grow 1 to 2 feet tall.

This perennial resembles the *Galium* or Bedstraw of the woods; but these flowers are not funnel-shaped but slightly bell-shaped. Many of the Bedstraws have barbed stems which catch into our clothing when we go into the forests.

Also closely resembling the Woodruff is the Crosswort, *Crucianella stylosa* (*Asperula ciliata*). This plant has five parted flowers, whereas the flowers of *Galium* and *Asperula* have four parted flowers. *Crucianella* bears bright pink, fragrant flowers and sometimes behaves as an annual.

USES. Sweet Woodruff is fine for cutting purposes, and is used with varieties of the English Ivy for a ground covering among shrubs and under trees. Dried leaves have a very agreeable aromatic odor.

CULTURE. It will succeed when planted in clumps if given a partially shaded position in moist soils.

PROPAGATION. It is propagated by division, inasmuch as it has long underground stems, and increases rapidly. The seeds germinate slowly.

ASPHODELINE—Jacobs-rod

(as-foh'-de-leen. Named from *a*, not, and *sphallo*, to supplant; the plant which is not surpassed.)

The classic Asphodel is rarely seen in gardens although its interesting tall and stately spikes of yellow and white flowers are of interest to garden lovers. The Asphodels are variously cataloged as *Asphodeline* and *Asphodelus*: the former genus is erect and has leafy stems, the latter is stemless. In *Asphodeline lutea* the flowers are sweet-scented and yellow, the stems are 3 feet to 4 feet tall. The plants bloom in June. In Bailey's "Standard Cyclopedia of Horticulture" we read that this is the plant mentioned by Homer which grows in the meadows of the dead, where the heroes gathered in Hades. In Greece it is wild and is always associated with waste places and the dead. To us it has no such associations.

Although the name Kingspear, is often used for this plant, it is not in good standing, inasmuch as the Desertcandle or *Eremurus* is also called by that name.

CULTURE. The Asphodels are excellent border plants, and may be grown in partial shade or sun. They are suited to most garden soils.

The *Gardeners' Chronicle* (England) notes some interesting observations on behavior of the plants:

"*Asphodeline lutea* after flourishing with the liveliest vigor for the first years of its maturity, producing great, massive seed spikes each weighing a stone or more, enters quickly into its decline. From a full five or even six feet high the flower spike in the next year shrinks to four feet, and the next to three or even two. After that, if left alone, the Asphodel may even fail to flower at all. Yet it needs but to be dug up in the Autumn and planted anywhere nearby to be restored to its pristine vigor, and enabled to heave and hold up its great flower spikes as it did before. And so, if unconfined, *Asphodeline lutea* renews its youth like the eagle, but if restrained within a narrow plot of ground it pines away. Of course, there are many other plants which behave in like manner. *Trollius europaeus* is, in our experience, a striking example. It loves change; monotony is death to it. Keep it in one place and it endures life, transplant it, and *Trollius*, like the true Asphodel, enjoys life. But why should this be so? We do not know; and as gardeners we are much too busy to find out."

PROPAGATION. The plants are readily divided in Spring or Fall. Seed is advertised in some catalogs.

ASTER—Hardy Aster (Michaelmas-daisy)

(as'-ter. Name derived from *aster*, a star.)

The American who reads English books about gardens is thrilled by the love of the British for Michaelmas-daisies. He immediately

hunts his own roadsides and delves into catalogs to acquire some of these lovely flowers. For the Wild Asters are truly lovely and are an asset to any garden, many of which bloom at a season when the other flowers are failing and the roadsides are parched after our usual Summer droughts. It is a reflection upon our appreciation of our own native flora to read that there are many selected varieties of Asters, most of which have been produced abroad. One of the best known British breeders is Edwin Beckett, gardener at Aldenham House in England, who raises 150 varieties in his garden. Messrs. W. Wells, Jr. and Ernest Ballard are equally well known.

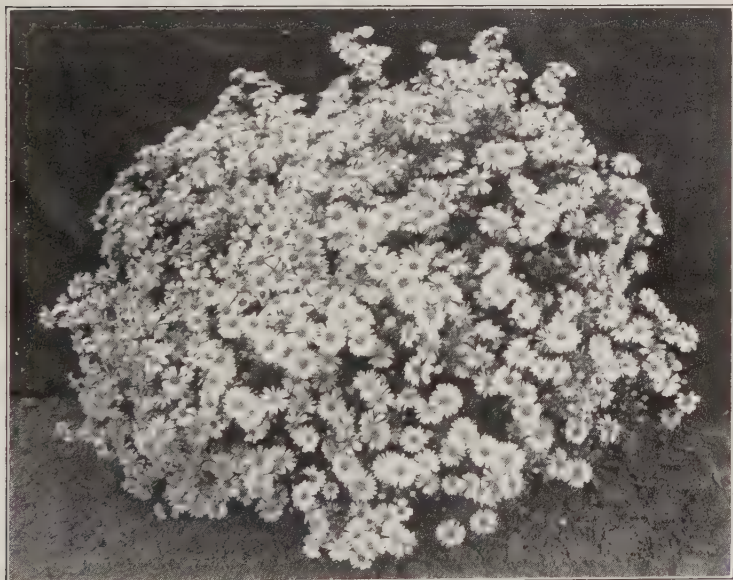


Among Asters the variety Climax is one of the good blue sorts

SPECIES AND VARIETIES

- ACRIS NANUS. 1-1½ feet. Lavender-blue. Aug. to Sept. Good dwarf.
- ADVANCE. 4 feet. Lavender. Sept. Free flowering.
- ALPINUS. 9 inches. Purplish blue and white. May to June. Rockery or front of border. Very early.
- AMELLUS (Italian Aster). 2 feet. Rich violet. Aug. to Sept.
- AMETHYSTINUS. 4-5 feet. Amethyst-blue. Oct. Mass of small flowers. Native from Vermont to Nebraska.
- BEAUTE PARFAIT. Violet-blue, 2 inches across.
- BEAUTY OF COLWALL. 3 to 4 feet. Ageratum blue. Sept. One of the best doubles.
- BEAUTY OF RONSDORF. 18 inches. Compact, bushy; good for cutting. Var. of AMELLUS. July and August.
- BESSARABICUS. 2 feet. Deep purple. Var. of AMELLUS.
- BIG BEAR. 12 inches. Violet. Rock garden. Var. of FARRERI.
- BLUE GEM. Blue. Double. "Best blue in cultivation."
- BOULE DE NEIGE. 2 feet. White.
- CHARM. 3-4 feet. Violet-blue. Double.
- CLIMAX. 5 feet. Lavender-blue. Sept. to Oct. Superb var. of NOVIBELGI.
- CORDIFOLIUS (Blue Wood or Heartleaf Aster). 1 foot. Light lilac. Sept. Common wild sort extending from Nova Scotia to Georgia.
- CURTISI. 3 feet. Heliotrope. Aug. to Sept.
- ERICOIDES (Heath Aster). 2 feet. White. Sept. Small leaves. Wild from Maine to Florida.
- ESTHER. 2 feet. Pale pink. Sept. to Oct. Var. of ERICOIDES.
- FARRERI. 1 foot. Violet-blue. Long, narrow rays and vermilion orange disk. Discovered by Reginald Farrer at an altitude of 10,500 feet.
- FELTHAM BLUE. 2½ feet. Blue. Aug. to Sept. One of best.
- FORMOSISSIMUS. 3 feet. Bright violet.
- GOLIATH. 6-10 inches. Bluish purple. May to June. Var. of ALPINUS.
- GRANDIFLORUS. 2-2½ feet. Bluish-violet. Oct. to Nov. Late. Native from Virginia to Florida.
- IDEAL. Mauve. 2½ inches in diameter. Var. of AMELLUS.
- JOAN VAUGHAN. 3-4 feet. Deep blue. Semi-double.
- KING GEORGE. 2 feet. Bluish-violet. One of the best of the lower growing sorts. English proclaim it with such adjectives as "phenomenal," "sensational," "foremost of all herbaceous plants."
- LAEVIS (Smooth Aster). 4 feet. Lilac-lavender. Neat habit. Graceful. One of the best native sorts from Maine to Louisiana.
- LIL FARDELL. 4-5 feet. Mauve. Sept. Showy form of NOVAE-ANGLIAE.
- MACROPHYLLUS (Bigleaf Aster). 4 feet. Lavender-violet. Sept. Dry, shady places. Found wild from Canada to Minnesota and North Carolina.
- MADAM POICHAUVIN. Deep rose, approaching crimson. Flowers 1½ inches across.
- MAUVE CUSHION. 1½ feet. Mauve. Good for rock walls. Especially late.

- MAUVE QUEEN.** 3-4 feet. Mauve. Semi-double. Large.
- MRS. BERKLEY.** 1 foot. White. Aug. to Sept. Var. of **ACRIS**.
- MRS. RAYNOR.** 3-4 feet. Nearest red.
- MULTIFLORUS** (Wreath Aster). 2 feet. White; small. Oct. to Nov. Late.
- NOVAE-ANGLIAE** (New England Aster). 3-5 feet. Purple; also a rosy var. Sept. to Oct. Common, showy, wild sort. Found from Quebec to South Carolina.
- NOVIBELGI** (New York Aster). 1-3 feet. Blue. Sept.-Oct. Found from Newfoundland to Georgia.
- PEGGIE BALLARD.** 4 feet. Lavender-blue. Semi-double. Var. of **NOVIBELGI**.
- PERRY FAVORITE.** 2½ feet. Pink. 2 inches diameter. July to Aug.
- PIONEER** (*cordifolius novibelgi*). 4 feet. Compact. Rose-pink.
- PORTERI.** 1 foot. White. From Colorado. Good for rock walls.
- PREZIOSA.** 2 feet. Violet-blue. Var. of **AMELLUS**.
- PTARMICOIDES** (White Upland Aster). 1½ feet. White. August. Stiff stems for cut flower use. Found wild from Massachusetts to Colorado.
- PYRENAEUS** (Catalonian Aster). Blue-lavender. 2 inches diameter. Aug. to Nov. Silvery leaves.



The perennial borders have been enriched in recent years by the thoroughly successful Dwarf Hybrid Border Asters

Courtesy Henry A. Dreer, Philadelphia, Pa.

ROBERT PARKER. 4 feet. Pale heliotrope.

ROBINSON V. C. Bluish-mauve. Double. Long sprays.

RUDOLPH GOETHE. Lavender-blue. Flowers $2\frac{1}{2}$ inches diameter.

Good for cutting. Var. of AMELLUS.

SAM BANHAM. White. Early. Good cut flower.

SAPHIR. 3 feet. Soft sky blue. Var. of NOVIBELGI.

SCHOEN ROTTROUT. Rose, tinted lighter in the center.

SILVER GEM. 4 feet. White. Sept. to Oct. Var. of ERICOIDES.

SONIA. Bright rose-pink. Bushy, free-growing. Var. of AMELLUS.

SNOWFLAKE. 18 inches. Pure white.

ST. EGWIN. $2\frac{1}{2}$ to 3 feet. Pink. Sept. to Oct. One of the best. Var. of NOVIBELGI.

SUBCAERULEUS (India Aster). 18 inches. Bluish-violet. May to June. Large flowers. Needs a little Winter protection.

TATARICUS (Tatarian Aster). 5-6 feet. Violet blue. Oct. One of the tallest and latest varieties. From Siberia.

THOMSONI. 12-18 inches. Pale lilac-blue. July and August. Var. of AMELLUS.

ULTRAMARINE. 4 feet. Blue-purple. Upright growth. Var. of AMELLUS

USES. To see the various sorts of Asters is to suggest a hundred uses for them: tall sorts as backgrounds for lower perennials; tall sorts in front of evergreens; tall sorts for woodlands and roadsides; tall sorts for screening fences, ditches; shorter species for bringing a spot of color into the Fall perennial border; all species for cutting and useful for large vases in the home, church or social gathering.

CULTURE. No culture is necessary. Plant them and if given extra food and water they repay us; if not they bloom beautifully to shame us for our neglect. Of course, in the garden where neatness is necessary, we do stake the tall sorts. They seem to grow well either in full sun or partial shade.

It will be of interest to read T. A. Weston's report of the way Edwin Beckett grows them in England.

"The rows are 3 feet apart; the plants are set 4 feet apart set angle-ways. This border has been devoted to Asters for over 30 years; the plants are lifted annually, the ground thoroughly trenched and the stools split up, the best portions being replanted about the beginning of March. Five hazel stakes are allowed to each plant, the stakes being inserted close to the roots, but spread out at the top to permit shapely growth. The growths are kept to about five for the strongest sorts; twice that number for the dwarfer types, these being tied to hide the stakes."

PROPAGATION. Cut up the clumps as often as you think of it. They multiply rapidly and one always has a few plants to give to a friend. Seeds of the garden varieties do not reproduce true.



The plummy sprays of Astilbe would grace the refined type of garden

ASTILBE—(Herbaceous Spirea)

(as-til'-bee. From *a*, not, and *stilbe*, brightness; which indicates that flowers are not very showy but in this the opinion of the gardener differs from the botanist who named it.)

The Astilbe resembles the *Aruncus* superficially in the nature of its feathery flower spikes, but generally, as seen in the garden, it is not as tall. Perhaps the most popular group for outdoor planting is known as *A. arendsi*, this being an improved race derived from hybridizing many other species. The varieties found in catalogs bear rose, lilac,

salmon pink, and white flowers. The names such as *japonica*, *davidi* and *grandis* are the species of *Astilbe* which are the parents of the named varieties. The plants in the garden bloom in June, July or August.

VARIETIES

AMERICA. 3 feet. Pale pink.

BETSY CUPERUS. 5 feet. Drooping flower spikes are 2 feet long. White flowers with pink centers. Summer.

BRUNHILDE. 4 feet. Creamy white, tinted lilac.

CERES. 2½ to 3 feet. Rosy lilac, loose heads.

GLADSTONE. 18 inches. Snow white. Erect spikes.

GLORIA. 2-3 feet. Dark pink, shaded lilac.

GRUNO. 4 feet. Salmon-pink. Loose, spreading spikes.

KING ALBERT. 6 feet. Pure white. "Finest," says Perry.

KRIEMHILDE. 3 feet. Salmon pink. MARGUERITE VAN RECHTEREN. 5 feet. Bright red, tinged with dark lilac. Immense trusses of flowers often 3 feet long.

META IMMINK. Pink. Dense spikes of bloom.

PINK PEARL. Light pink.

PROF. V. D. WEILEN. White. Giant long stems.

QUEEN ALEXANDRA. Light pink.

RUBENS. Rosy red.

VENUS. Violet-rose.

VESTA. Lilac-rose.

CULTURE. The plants enjoy plenty of water and a rich soil and partial shade.

PROPAGATION. The large clumps may be divided in Spring.

AUBRIETA (*Aubrietia*)—(Purple-rockcress), (False-wallcress)

(oh-bree'-ta. Named for M. Aubriet, a French botanical draughtsman. Name spelled originally *Aubrieta*, but generally spelled *Aubrietia* in catalogs.)

Early in the Spring our eyes search for color in the garden. We grow the Rockcress (*Arabis*) for white, Goldentuft for yellow and *Aubrieta* for purple, rose and lavender. But as a matter of fact, few persons have grown the *Aubrietias* because they have not known of them although the catalogs list the plants.

The named varieties are derived from *A. deltooides*. Among the many varieties are:

BRIDESMAID. Soft pink.

CILICIA. Lavender with white eye.

CRIMSON KING. Crimson.

DR. MULES. Purple.

GRAECA. Mauve.

HENDERSONI. Purple.

LAVENDER. Clear color.

LEICHTLINI. Red-purple.

MRS. LLOYD EDWARDS, reddish purple.

SOUVENIR DE W. INGRAM, rosy pink.

VIOLET QUEEN. Violet-purple.

USES. They are useful in the front line of a well-drained perennial border or for the rock garden as well as dry walls or between stones of random flagging.



Left, Wild-indigo or Baptisia, a blue, pea-shaped flower of May; right, English Daisy or Bellis, cheery edging plants

CULTURE. They prefer the lighter soils, being less hardy than Arabis, and full sun. Transplant in Fall or earliest Spring, for at other times they are impatient of being moved. As soon as the plants are through flowering, they should be trimmed back severely.

PROPAGATION. Divide the plants in the Fall. If seed is obtainable, they may be easily started from seed. Cuttings may be taken in the early Fall but they must remain in the protected frame for the Winter.

BAPTISIA—Wild-indigo (False-indigo)

(bap-tis'-i-a. From *bapto*, to dye; some of the sorts are used for that purpose.)

The Wild-indigo is a strong growing plant with yellow, white and dark blue flowers which somewhat resemble the Lupine, being pea-shaped. The flowers grow on a spike about 6 inches long. False-indigo (*B. australis*) grows about 3 feet high, has dark blue flowers and dark bluish green leaves cut very deeply to form three oval leaflets. The pods are short and inflated. Yellow Wild-indigo (*B. tinctoria*) has short leaves

and bright yellow flowers. It grows from 2 feet to 4 feet high. These plants bloom from May through July.

USES. These are very striking plants for the border because of the excellent spikes of blue or yellow color. They are also good in the wild garden. Where Lupines are not successful, the Baptisia thrives excellently.

CULTURE. Baptisias should be planted in full sunlight, otherwise they prove to be shy in blooming. They will stand dry, sandy soils.

PROPAGATION. They are usually propagated from seeds and division of the plants which are very woody at the crown. The seeds should be sown as soon as they are gathered and wintered over in the coldframe, where they will germinate the following Spring. The plants grow very slowly when young and are generally considered difficult to transplant.

BELLIS—English Daisy (Herb-margaret)

(bel'lis. From *bellus*, pretty; well named because of its attractive flowers.)

The Daisy of Europe is the one of which we speak here. Who has not read the words of Burns and Wordsworth, and having read, who has not admired these charming buttonlike flowers the more? Let us read again several stanzas of Burns:

TO A MOUNTAIN DAISY

On turning one down with the plow.

Wee, modest, crimson-tippe'd flower,
Thou's met me in an evil hour;
For I maun crush amang the stoure*
Thy slender stem;
To spare thee now is past my power,
Thou bonnie gem.

Cauld blew the bitter biting north
Upon thy early, humble birth,
Yet cheerfully thou glinted† forth
Amid the storm,
Scarce reared above the parent earth
Thy tender form.

* Stoure—means dust.

† Glinted—means peeped.

With the Tulips in the early days of Spring the English Daisy (*Bellis perennis*) starts to produce its single or double white, pink, rose and red flowers upon its low plants, which seldom grow over 3 inches

tall. Such varieties as Longfellow, double rose; Radiata, with quilled petals; Monstrosus, giant flowers; and Snowball, with large, double white flowers. Although they bloom quickly in the Spring, the finest flowers are produced in the Fall when it is cooler.

USES. They are combined with Pansies and Forget-me-nots and are also used as a ground cover for Hyacinths, Tulips, and other bulbs, either in the rock garden, as an edging for borders, or in the early window boxes.

CULTURE. The hot weather is very severe on the English Daisies. They should be planted 6 inches apart each way in cool soil. They should be protected in the Winter and if they are kept in coldframes, will bloom during the Winter as do Pansies and Violets. To insure uniformity of flowers professional gardeners do not set out the plants until they bloom and superior flowers are selected.

PROPAGATION. The finer English Daisies are propagated by division in the Fall. They grow easily from seed which should be sown in August in coldframes, where they should be kept during the Winter. Like Pansies they are treated as biennials and sown each year.

BOCCONIA (Macleaya)—Plumepoppy (Tree-celandine)

(bok-koh'-ni-a. Named for Paola Bocconi, a Sicilian physician and botanist.)

The Plumepoppy (*Bocconia cordata*) is perhaps one of the most imposing plants of the hardy border, for it grows from 6 feet to 10 feet high. In general aspect the plant is grayish green in color with very large and deeply cut leaves, much like those of Bloodroot. The flowers are not very conspicuous but form huge plumes of feathery, small, creamy white blooms. Other varieties have leaves which are silvery under the surface and small white flowers which are red when in bud. The flowering season of the Bocconias is during the Summer months, July and August, but the plumes remain attractive until cut by frost.

USES. The silvery foliage counts as white in the garden; hence, the Plumepoppy can be used where white clumps are needed. It seems adapted to wet places, is good as a specimen plant, and is excellent for the rear of borders, or to plant in front of tall shrubbery. It can also be used for centers of beds of flowers.

CULTURE. The Plumepoppy requires lots of sunlight and a rich soil seems to promote the production of large specimen clumps but they will grow in any good soil. Due to its suckering ability the Plume-



Plumepoppy or Bocconia well planted

poppy spreads rapidly and comes up at unexpected places so that it sometimes becomes a weed.

PROPAGATION. *Bocconia* plants grow easily from seed and attain a height of 3 feet to 4 feet the first year. They may be divided and should be confined, because the plants sucker very badly and will soon spread throughout the garden.

BOLTONIA (False-starwort)

(bol-toh'-ni-a. Named for J. B. Bolton, a British professor of botany.)

The *Boltonias* bloom at the same time and resemble some of the hardy *Asters* of the garden and woodland. The leaves are long, smooth, without teeth, and grayish and in these characteristics are roughly distinguished from the perennial *Aster*, or *Michaelmas-daisies*.

The catalogs commonly list three sorts: *B. asteroides*, a tall, white sort growing 5 feet to 8 feet tall, blooming in August and September; *B. latisquama*, which is similar to the former sort but with pinkish lavender flowers; and *B. latisquama nana* which grows only 2 feet tall. The colors are not strictly the distinguishing characteristics, but as the catalogs usually agree, we shall pass on to add that the flowers of *B. latisquama* are generally larger than those of the first species.

USES. The *Boltonias*, because of their great height, are highly desirable in large perennial borders because the plants literally bear thousands of starlike flowers. They serve excellently as cut flowers.

CULTURE. The plants are of the simplest culture, taking care of themselves when established. Sometimes when the soil is rich, they grow a bit too tall for their strength. Their appearance can be improved by staking but the growths should be thinned to four or five and each tied to a bamboo cane; otherwise they have a bundled appearance.

PROPAGATION. The seeds usually grow successfully, but the plants are readily divided into pieces in the Spring. Frequent division is advisable, as the plants reproduce rapidly.

CACTUS, Hardy—*Opuntia*, *Echinocactus*

The Cacti, as everyone knows, are plants with thick, fleshy stems covered with spines, for usually there are no leaves. The *Opuntias* which are perhaps the most common ones grown in the Northern states, have large and flat branches. They have many colored spines and exquisite flowers. The spines are black, brown, purple, yellow or straw colored and white, while the flowers are pale pink and yellow. The



Poppy-mallow or Callirhoe which spreads
mat of color over the soil all Summer

souring. They need water in the Summer but not during the Winter. Plant them in full sun.

PROPAGATION. They are propagated by seeds and cuttings taken from the old wood rather than using the soft stems.

CALLIRHOË—Poppy-mallow

(kal-li-roh'-ee. A mythological diety, daughter of the river god, Achelous.)

The Poppy-mallow has long, trailing stems with many saucer-shaped or Poppy-shaped flowers. These flowers are borne in the axils of the leaves and vary in color from rosy crimson to cherry red and rose, with white centers. *Callirhoë involucrata* is the most useful species and blooms all during the Summer and early Fall. The leaves are five- to seven-lobed and hairy. Height 6 inches to 8 inches. It is a native from Minnesota South into Mexico.

USES. The Poppy-mallow is good for small borders, for the rock garden or any place with absolute drainage. It is excellent planted at the top of a bank or wall. It is also successful in seashore gardens.

Comanche Pricklypear (*O. comanchica*) has large yellow flowers and purple fruit. The Snowball or Hedgehog Cactus (*Pediocactus, Echinocactus simpsoni*) is very small and grows into a globe with pale pink flowers. Other hardy Opuntias are *O. vulgaris*, *O. phaeacantha*, *O. polyacantha*, *O. arena-ria* and *O. rafinesqui*.

USES. The hardy Cacti are used mostly in the rock gardens, although many of them are used in the borders and in dry, rocky places.

CULTURE. Cacti require a light, open and porous soil, containing lots of leafmold, loam and sand. There should also be enough lime present to keep the soil from

CULTURE. It is of easiest culture though often difficult to establish, growing rapidly during the Summer months. It thrives in sunny, dry, sandy positions, where the roots penetrate to a great depth thus being extremely drought resistant.

PROPAGATION. These plants exhaust themselves easily and should be renewed often. They often behave as biennials. They are propagated by seeds and cuttings.

CALTHA—Marshmarigold (Cowslip)

(kal'-tha. A contraction of *kalathos*, a goblet; refers to the cup-shaped flowers.)

The bright golden blossoms and fresh green leaves of the Marshmarigold, *Caltha palustris*, are familiar to all wild flower lovers. These lovely bits of gold inhabit the wet places in woods and along the brooksides. The plants seldom grow a foot tall. The leaves are heart-shaped and about 3 inches in diameter. The flowers open in April.

USES. They are splendid for wet spots and may be planted in 2 to 3 inches of water. They even succeed in gardens with only normal moisture. The leaves are frequently gathered and boiled for "greens."

PROPAGATION. Divide the plants in the Spring.

CAMPANULA—Bellflower, Canterbury-bells, Rampion, Harebell, (Peachbell), (Bluebell)

(kam-pan'-eu-la. Literally a little bell, being the diminutive of *campana*, a bell.)

There is hardly a group of flowers which possesses such rare beauty as does the large genus of Campanulas. There are many sorts, some growing 2 inches high and some from 4 feet to 6 feet high, but all have more or less bell-shaped flowers in lovely colors: white, clear pink, blue, rose, purplish rose, violet blue and lavender. All of them are desirable and seem to just fit in their various places from the formal border to the rocky ledges of the woods. Most of them bloom during June and July.

GROUPING. There are scores, yea hundreds, of species of Campanula. We can discuss only those most commonly cataloged. Let us simplify the whole classification and for garden purposes place them into the following groups:



Canterbury-bells; glorious large bells of pink, purple and white. A biennial



The Carpathian Harebell is one of the best edging plants because it does not become unsightly

1. Tall garden sorts such as: *C. medium*, *persicifolia*, *pyramidalis*, also *punctata*, *latifolia*, *lactiflora*, *trachelium*, *rapunculoides*, *rapunculus*. The first three species are refined sorts; the remainder are more often associated with the wild flower garden.

2. The Scotch Harebell Type.* The slender arching stems with drooping bells are distinctive. Besides *C. rotundifolia* and its varieties *hosti* and *superba*, there is a flock of sister species, hardly different as: *C. arctica*, *alaskana*, *linifolia*, *robsoni*, *marchesetti*, *thessalica*, *piperi*, *raineri*, *scheuchzeri*, and more. These are extremely easy to grow and seed of rare sorts, through error, may grow to be some of this set. All have the little round basal leaves and are very narrow on the stem.

3. The Carpathian group is mostly *C. carpatica* in its many forms. It is not tall, but very vigorously trailing. The leaves are broad, like those of some native Violets, the bells and saucers solitary and erect. There are white and pale forms of this, and personal names, and *C. turbinata* and *C. pelviformis* are given as species. Some seeds of rare kinds may grow into some kind of *carpatica*.

* From this point I am quoting from Stephen F. Hamblin, Lexington Botanical Garden, from notes in "Horticulture."

4. The Gargano group is dwarf and tufted, with shiny rounded sharp-toothed leaves. In *C. garganica* the tiny flat blue stars are in flat, erect clusters. There are a half dozen forms of this, in blue or white. *C. portenschlagiana* (*muralis*) is also matlike, tufted, with drooping bells, while similar but more tiny are *C. fragilis*, *excisa*, *pulla*, *pulloides*, *pusilla* and *caespitosa*, rather mixed in the seed packets. Some of these matlike ones are a bit difficult, but a drained soil in full sun will keep them happy.

SPECIES. *C. barbata*, the Bearded Bellflower, grows 9 inches tall, with most of the leaves at the soil. The foliage is hairy, 5 inches long. The flowers are pale blue, nodding, in loose racemes. The name *barbata* refers to the bearded throat.

C. caespitosa (*pusilla*) (*bellardi*), is a rock garden species of a tufted habit, 6 inches tall. The leaves are oval and toothed. The solitary, nodding flowers are blue and $\frac{1}{2}$ inch long. Lester Rowntree suggests an Autumn mulch of leafmold, shale, or small granite chips.

C. carpatica, the Carpathian B. Of the dwarfer varieties, which are beautiful and useful in rock gardening, the Carpathian Bellflower is probably the most popular. It grows in dense tufts, not exceeding 8 inches in width, and is covered with clear dark and light blue or white flowers borne on wiry stems. The leaves are oval, $1\frac{1}{2}$ inches long, and toothed. Unlike the Canterbury-bells, this sort is perennial. Var. *turbinata* is lovely violet-blue sort.

C. garganica is a trailing sort. The flowers are blue, wheel-shaped, $\frac{3}{4}$ inches across.

C. glomerata, Danesblood, grows 2 feet tall. The flowers are blue or white, long bells associated together in dense clusters at the tips of the stems. Var. *dahurica*, the Dahurian B., has clusters of bloom 3 inches across. Var. *superba* has deep violet flowers in large clusters.

C. grandiflora is *Platycodon*, which see page 226.

C. isophylla, the Italian B., bears trailing stems. The leaves are oval and deeply toothed. The starlike flowers have given this the common name of Star-of-bethlehem B. to the white variety. This sort is tender and must be used as a pot plant in areas of freezing. It is a remarkably profuse flowering species and one which has much charm. As it seldom seeds, cuttings must be used.

C. lactiflora, the Milky B., a white Bellflower and its blue variety is a good one. Small bells are produced upon erect stems for a long period, starting in July. It has broad, wrinkled leaves, and attains a height of 4 feet.

C. latifolia, the Great B., grows 4 feet tall. The long, oval leaves often attain a length of 6 inches. The bells are long, purplish-blue



Showing how the Peachleaf
Bellflower doubles its
petalage

The variety *macrantha* has flowers $2\frac{1}{4}$ inches long. This sort grows in either sun or shade.

C. medium, the Canterbury-bells (*Campanula medium*) and Cup-and-saucer variety (*C. calycanthema*) are perhaps the most showy of the whole group. The flowers are very large, in lovely white, pink, blue and deep purple shades. The stalks of bloom reach a height of about 2 feet and they are very effective when planted with the early blooming varieties of Phlox. This species is biennial.

C. muralis (See *C. portenschlagiana*).

C. persicifolia, the Peachleaf Bellflower, grows from 2 feet to 3 feet high, and its flowers, in blue or white, are more shallow than bell-shaped. It has long, narrow leaves and is very graceful. Of this species, *moerheimi* is the best double white. Telham Beauty is a larger flowered blue variety with bells of great size.

C. portenschlagiana (*muralis*), the Dalmatian B., is one of the most popular and successful sorts for the rock garden. It is of creeping habit. The leaves are deeply toothed, generally kidney-shaped, and long stalked. The flowers are blue-purple, produced in clusters of one to three. It is constantly produc-

ing a few flowers until Fall. It is free from pests.

C. punctata (*nobilis*), the Spotted B., grows 2 feet tall with leaves 5 inches long, ovate and coarsely toothed, the lower heart-shaped and long-stalked. The flowers are white spotted inside. Var. Marion Gehring is a hybrid between *C. punctata* and *C. medium*. It bears long, pale lavender flowers and spreads by underground stems, but produces no seed. It makes large clumps and is very hardy.

C. pyramidalis, the Chimney Bellflower is the tallest one, attaining a height of 5 feet. It sends up long stalks of porcelain-blue and

clear white flowers in August and continues blooming for six weeks. When in full bloom, the plant seems to form a perfect pyramid, but be sure to stake the plants early as the stems are very fragile. This is one of the pure biennial sorts.

C. rapunculoides, the False Rampion, grows 3 feet tall. The flowers are produced in one-sided terminal racemes. They are deep violet, long bells. Although a native of Europe this has escaped from cultivation.

C. rapunculus, Rampion, grows 3 feet tall with a thick parsnip-like root, a biennial. The long basal leaves are often 8 inches long, wavy toothed and long stalked; the stem leaves are long and narrow. The flowers are lilac, $\frac{1}{2}$ inch long in narrow racemes.

C. rotundifolia, the Scotch Harebell, is sometimes called the Bluebell, but there are several other flowers given this name. Curiously enough, these are found wild in Europe, Asia and North America. It is an attractive flower having most dainty little bells of blue or white which appear during late Spring and continue for a long season. This sort is found wild in many of the hills and mountains of our country and possesses a sort of unexcelled daintiness. Var. *hosti* has larger flowers.

C. trachelium, Coventry-bells, is a hairy species which grows 3 feet tall. The long, oval leaves are coarsely toothed, the lower long-stalked. The nodding blue-purple flowers are 1 inch long, in loose racemes, produced in July and August.

USES. The uses are almost as varied as the numerous forms. The dwarfer varieties are especially suited for small borders for baskets and the rock garden. The tall ones, especially the Chimney Bellflower, are adaptable for pot culture or as specimen plants and make a beautiful decoration for the terrace or porch. The other varieties are excellent in the border or to use as cut flowers.

CULTURE. Campanulas should be given full sunlight and should not be crowded in the beds. The taller varieties need staking to prevent injury from the high winds. They like a good, rich, limestone soil, and in the Spring a little fine manure and some bonemeal should be dug around each plant. Most of the varieties, especially the taller ones, need Winter protection, for if allowed to stand naturally, the heavy snows will flatten the crown of leaves to the ground, causing it to decay. Forest leaves should be packed between the plants, holding the leaves of the Campanula together with one hand. Evergreen

boughs, straw or hay will serve for the dwarfer ones. In many climates it is best to keep the plants in a coldframe for the Winter. If the flowers are cut immediately upon fading, the blooming season can be prolonged for several weeks.

PROPAGATION. Most of the *Campanulas* are biennials. For this reason seed must be sown each year in order to have plants which will bloom the next year. A mistake, commonly made, is in sowing the seed too late. It should be sown any time from May until August, according to the variety, in rich soil which has been carefully prepared, and it should be watered daily. The plants should be hardened gradually, after they have been wintered over in perfectly drained coldframes, and can be removed to the open ground in May. If coldframes are not available, at least have the *Campanulas* in beds raised 3 inches above the ordinary level, so as to insure perfect drainage. The rows should be 12 inches apart, with an almost equal amount of space between the plants. *Campanulas* are also propagated by cuttings and division.

CASSIA—Wild (American) (Indian) Senna

(kash'-a or kas'-si-a. Ancient Greek name.)

A bold perennial for large masses, *Cassia marilandica* is an attractive addition to the large perennial border. The flowers are pea-like, yellow, with a dark center and are borne in large clusters. The leaves are locustlike; that is they are finely divided. The plants grow 4 to 8 feet tall and bloom in August and September.

USES. Large masses planted among shrubbery or in a wide perennial border are attractive. It may even be used as a hedge, for the plants are rather woody.

CULTURE. Give the plants sun, and if a moist soil is available, they will be at home in it.

PROPAGATION. Cassias produce a large quantity of seed which grows readily if sown as soon as ripe. The woody clumps may be divided with a hatchet.

CAULOPHYLLUM—Blue Cohosh

(kaul-o-fil'-lum. From *kaulos*, a stem, and *phyllon*, a leaf; refers to stem ending as if it were in a leaf stalk.)

In the woods of many of the Eastern States there grows a lovely wild plant which resembles a Meadowrue, yet it produces dark purple

berries. This is the Blue Cohosh, *Caulophyllum thalictroides*, or as it is also called, Pappoose-root, Squawroot, and Yellow Ginseng. It is not as conspicuous in Spring because its flowers are dark purple-maroon, but later, its berries, the size of a pea, are handsome. Few would guess that it is related to the Barberry.

CULTURE. It seems to grow only in the richest woods, springing from deep leafmold. It tolerates shade.

PROPAGATION. Its rhizome may be divided.

CENTAUREA—Knapweed, Cornflower, Mountain-bluet (Hardheads)

(sen-tau-ree'-a or tau'. A name given to a plant said to have cured the wound on the foot of Chiron, one of the centaurs.)

The Centaureas are some of the most graceful flowers to grow in any garden. The flower heads are like showy, ragged thistle blooms of bright red, deep purple, golden yellow and blue. They grow from 2 feet to 3½ feet tall and bloom during the Spring and Summer months.

SPECIES. The Mountain-bluet (*C. montana*) has numerous deep blue, rose or white flowers somewhat resembling the annual Cornflower and grows 1½ feet tall. Prized because of its early bloom.

The Persian Centaurea (*C. dealbata*) has flowers which are lilac-pink to white in the center, or a bright red. The leaves are deeply lobed. This species seems to attract the birds when the seed is ripe, thus making it hard to save the seed.

The Globe or Golden Centaurea (*C. macrocephala*) is perhaps the showiest of all because the thistlelike, golden yellow flower heads are very large. The plant itself is an erect and somewhat spindly grower because the stems are so stiff.

The Syrian Centaurea (*C. babylonica*) is a whitish perennial with yellow flowers which grows at least 3 feet tall.

Several of the species are known as Dusty-millers; the foliage is white throughout the Summer. *C. cineraria* (cataloged as *candidissima*) has less divided leaves than the other common species, *C. gymnocarpa*, but the leaves are usually whiter.

USES. Centaureas are used for the perennial border, for pots, baskets and the rock garden. Most of these plants produce long-stemmed and lasting flowers which are admirable for cutting.

The Dusty-millers have a real place in the garden for there is no contrast so charming as that between the bright colors of most perennials and the gray or whitish leaves of these plants. They may be clipped low as edging plants.

CULTURE. Centaureas are of very easy culture. They bloom best when planted in an open, sunny position, with any good garden soil. Clip back the Dusty-millers to keep them at the desired height and form. The blooms are not valuable.

PROPAGATION. They are propagated from seeds, although some of the sorts may be readily divided. The Dusty-millers are increased both by seeds and cuttings. *C. montana* spreads so rapidly by underground stems as to become too abundant unless kept in check.

CENTRANTHUS (Valeriana)—Jupitersbeard (Red Valerian)

(sent-ranth'-us. From *kentron*, a spur, and *anthos*, flower; refers to fact that flowers have spur at the base.)

Related to the Garden-heliotrope, the Jupitersbeard, *Centranthus ruber*, is usually cataloged as *Valeriana coccinea*. This is a perennial with grayish-green foliage. The flowers appear in May and are tiny and aggregated together in a compact, terminal cluster. They are



Lovely Jupitersbeard, *Centranthus rubra*, is best seen when planted among the rocks



Snow-in-summer or *Cerastium*, snowy masses of white flowers borne upon low plants with white leaves



Ceratostigma or *Plumbago*, one of the best late blue edging plants

bright crimson, light pink, or white, and fragrant. The plants grow 3 feet tall.

USES. The Jupitersbeard is handsome in borders, the wild garden or as a wall plant. It is not exceptionally hardy unless it has perfect drainage. It serves as a good cut flower. It is said to like lime.

PROPAGATION. The plants may be divided in Spring. Seed may be sown.

CERASTIUM—Snow-in-summer (Mouse-ear Chickweed), (Snowplant)

(ser-as'-ti-um. From *keras*, a horn; from the characteristic seed vessel.)

Snow-in-summer is surely a very descriptive name for this low growing, white-flowered and silvery-foliaged plant. There are myriads of small white flowers produced in June, forming a dense mat of growth. The flowers have five petals which are so deeply cleft that they appear to have ten petals. *Cerastium tomentosum* is the common species and grows about 6 inches high. *C. biebersteini* is very similar but grows a little taller and has larger flowers and is less gray. The leaves of *C. tomentosum* are $\frac{1}{2}$ to $\frac{3}{4}$ inches long and about $\frac{1}{8}$ inch

wide; those of *C. biebersteini* are 1 to 1½ inches long and ½ inch wide. *C. arvense* is a green-leaved species and stands the hot Summers better than the other two. For the rockery this latter sort spreads too rampantly.

USES. These plants are invaluable for the rockery or as an edging for beds and borders. They are also excellent to plant in dry, sunny places as a carpet covering for graves or steep banks. The leaves are as valuable as the flower, and if one prefers to keep the compact appearance of the plants, it is wise to remove the flower buds.

CULTURE. The plants are very easily grown in any soil.

PROPAGATION. They are propagated by seeds, cuttings directly after flowering or divisions of the plant. The plant should be divided very early in the season, either with or without roots, and planted deeply in well firmed soil which should be kept moist until roots have formed.

CERATOSTIGMA—Plumbago (Chinese Leadwort)

(ser-at-oh-stig'-ma. From *keras*, a horn, in reference to the hornlike branches of the stigma of the pistil. The species *larpentae* is from Lady Larpente in whose garden it first bloomed in England.)

Ceratostigma plumbaginoides, or *Plumbago larpentae*, is one of the deep blue, very late blooming, small border plants. Because it is so persistently in bloom from July until freezing weather in the Winter, it is very much valued at the time of the year when most other border plants have finished blooming. The Larpente Plumbago grows about 10 inches or 12 inches high and forms a round ball-like mass of dark green, glossy foliage which in the Fall months is covered with trusses of lovely cobalt-blue flowers on wiry stems, which last for a long time. There are several strawy, red bracts at the base of the flower.

USES. Plumbago Larpente is especially useful as a rock garden plant because the foliage turns a reddish-bronze in Autumn and lasts so long that, with the deep, glossy green foliage of early Spring, it makes a good all-the-year-round plant. This perennial is also used in borders and as an edging plant.

CULTURE. In the colder regions the plants need protection during the Winter, unless they are planted in well-drained rockeries. The plants may be taken from the ground and placed in coldframes. They grow well in sunny places and in any good garden soil.

PROPAGATION. The plants are usually propagated by dividing the roots in Spring.

CHEIRANTHUS—Wallflower

(ky-ranth'-us. From *cheir*, the hand, and *anthos*, flower; from the custom of carrying the Wallflower in the hand as a nosegay.)

The well beloved English Wallflower, *Cheiranthus cheiri*, deserves the praise lavished upon it through many years of culture. Unfortunately, it is not thoroughly hardy in many sections of the country. It is related to the Annual Stock, but the colors are more velvety and the leaves are not gray. The plants grow 2 feet tall. The flowers are single and double, yellow, yellow-brown, deep red, and maroon.

A hybrid, *C. kewensis*, has flowers which are brownish-orange inside, reddish-brown outside, and which fades with age to dark purple.

Cheiranthus allioni, the so-called Siberian Wallflower, is biennial in nature. The flowers are an advancing bright orange, produced in spikes 15 inches long. By keeping the flowers cut the plants can be kept in bloom from May to September, as it has a tendency to bloom itself to death. Bailey gives as the correct name *Erysimum asperum*.

USE AND CULTURE. Wallflowers are grown as pot plants for cool greenhouses. The Siberian Wallflowers are splendid for the perennial border, for the rockery, and for cut flowers.

The Wallflowers do not tolerate sour soil but prefer limestone soil or else treat the soil with ground limestone. Of the culture the "National Garden Bureau" advises:

"It may be wintered with considerable success if kept dry and given a covering to keep off the rain in well drained soil and can easily be kept over for early Spring bloom in a coldframe.

"Spring is the season of the Wallflower, but we must be content to have it in the Fall if we desire it in our gardens in one season. The strain known as the Parisian Extra Early will bloom with the Chrysanthemums if seed is started early, and the fragrant spikes in late Fall are very welcome. A strain known as the Early Wonder gives us double Wallflowers.

"Neither is a reliable bloomer the first season, however, unless the seed is sown not later than March. Little bloom will be secured from sowing in the open ground with the hardy annuals, unless the plants are kept over to bloom in the regular Spring season. The plant is growing in popularity and the extra trouble of getting them started in a sunny window or coldframe is well rewarded.

"These plants demand a soil rich in lime. They will run heavily to leaves in soil lacking it, so lime the ground in which they are to be planted. They do not need overly rich soil and stand considerable drought, but rich soil and moisture to promote vigorous growth will make Fall blooming much more certain.

"They may be lifted in the Fall and potted to bloom in the house if the buds do not show until it seems certain that the killing freezes will cut them down. They stand the transplanting well if a good ball of earth is taken up and they are kept in a cool shaded place for a few days."

CHELONE — Turtlehead (Shellflower), (Snakehead) (Balmony), (Codhead)

(kel-oh'-ne. From *chelone*, a tortoise which the flower resembles in form.)

The Chelone is sometimes confused with the Beardedtongue (Pentstemon), to which it is closely related. It is a late Summer plant, coming into bloom about the middle of August and



**Turtlehead or Chelone, a wildflower
to introduce to the garden**

lasting for six or seven weeks. The White Turtlehead or Shellflower (*Chelone glabra*) is a native and has clusters of flowers of a light creamy white, produced in August. The plants grow about 3 feet tall. The Pink Turtlehead (*C. lyoni*) has rose - purple flowers which grow from a mass of deep green leaves. The flowers of Chelone are inflated and long, tube-shaped, somewhat resembling the Snapdragon but flatter. *Chelone barbata* is really *Pentstemon barbatus*.

USES. Because of their season of bloom and their rather attractive colors, they make good plants for the border, or to plant along streams. S. N. Baxter suggests the Shasta Daisy as an effective foreground companion plant. The Indians used a decoction of the leaves to make a bitter medicine.

CULTURE. Chelones thrive best in moist or swamp places, in half shade. They are easy of culture. At blooming time, they should be fertilized or mulched deeply in order to conserve the moisture.

PROPAGATION. They are propagated from seeds, cuttings or divisions of the roots made in the Spring.

CHRYSANTHEMUMS, Hardy

(kris-an'-the-mum. From *chrysos*, gold, and *anthos*, flower.)

October and November are the months which marshal in the Chrysanthemums, and if these months be cold and rainy, the flowers do not develop well, but if the days are warm and the nights frosty, but not freezing, these flowers are in the height of their glory.

When we think of Chrysanthemums we seldom realize that many of the Daisies such as the Shasta, Arctic, Giant (see page 126), and the Pyrethrum, page 231, also are kinds of Chrysanthemums. Besides these there are a number of groups which we think of as true Chrysanthemums. Many old-fashioned varieties are very common in gardens but their fault is that they bloom so late as to be frozen year after year and for this reason are universally unsuccessful. By crossing these Chrysanthemums with *Chrysanthemum coreanum* we have produced an extremely worthwhile group known as Korean Chrysanthemums. They tolerate cold winters and bloom quite early. Prominent in this group are such varieties as Daphne, a lilac-rose; Mars, a deep scarlet; Ceres, a light straw yellow. New and more double varieties are constantly being produced.

Many of the varieties of Chrysanthemums such as Lillian Doty, both pink and white, and Garza, a tubular petaled white which are grown by florists are hardy but they bloom too late to be valuable in the garden. Another group is properly called the early flowering Chrysanthemums, blooming as they do in August and early September, but they are not as hardy



Indian Summer is a luminous golden-orange Chrysanthemum blooming in Mid-October. It is of the Korean type

Courtesy Bristol Nurseries, Bristol, Conn.

as the above mentioned sorts. They are well wintered in coldframes. The best varieties include Amelia (Pink Cushion, Azaleamum), a very compact, free-flowering and early soft rose; L'Argenteuillais, a chestnut red; Glory of Seven Oaks, an extremely early double golden sort; Cranfordia in white, yellow and pink; Ruth Cumming, an orange-scarlet; Barbara Cumming, a yellow; Frances Whittlesey, reddish-brown; R. Marion Hatton, a yellow pompon; Mme. Auguste Nonin, a deep rose; Goacher's Crimson, a redder sort than L'Argenteuillais.

CULTURE. Chrysanthemums will grow in any garden soil that is rich enough, for they are gross feeders. Buy plants in early Spring or divide old plants and reset each Spring, otherwise, they will become too crowded and impoverish the soil. A good place to plant them is near the foundation wall of a house; in such a situation they are protected somewhat during the Autumn and Winter. Extra large blooms may be produced by feeding with liquid manure once a week. Larger flowers may be secured by pinching off most of the smaller buds on each stem. When the plants make too rank a growth early in the season they may be cut back to cause them to branch and become more compact. If the plants are thoroughly soaked with water once or twice a week during the hot Summer, they will produce better buds and flowers.

Protect the plants during the Fall rains and from the frost with a canvas covering. Chrysanthemums have to be supported by tying to stakes or to wires stretched horizontally above the bed. Cover with a light mulch during the Winter. The mulch should be more of the nature of a sun shade rather than a warm covering. It is easy to suffocate the plants.

The plants are frequently troubled with mildew which can be prevented from spreading by dusting with sulphur early in the morning when the dew is on the plants. If this is neglected and the plants become too tall and bare at the base, cut back the plants in August even though most of the leaves are removed. They will sprout out and bloom nicely.

Plants affected with lice should be sprayed every few days with Black Leaf 40 or some other tobacco extract until the buds are all killed.

PROPAGATION. The simplest method of increasing the number of plants is to divide them in Spring. One can make cuttings, however, of the tops of the growing plants.

"All through the budding Springtime,
All through the Summer's heat,
All through the Autumn's glory,
They hide their blossoms sweet."

CIMICIFUGA—Bugbane (Bugwort), (Virginia Snakeroot), (Black Cohosh)

(si-mi-si-feu'-ga or si-mi-sif'-u-ga. From *Cimex*, a bug, and *fugo*, to drive away; from its supposed quality.)

To all persons who are familiar with the common wild or native woodland plants, the Bugbane is well known. This common denizen of woodsy places, Cohosh Bugbane, *Cimicifuga racemosa*, is a very tall, late blooming plant, growing from 4 feet to 8 feet tall and flowering in June. The large leaves are cut very deeply and the flowers, small, white, feathery and closely set, are borne on long stalks. Often over 18 inches of the stem is in bloom at one time.

C. dahurica has long spikes of creamy-white flowers in September and grows about 6 feet tall.

C. foetida var. *simplex*, the Kamchatka Bugbane, is the latest sort and does not bloom until October, and its graceful stems of white flowers branch freely and are only 2 feet or 3 feet high.

The long-flowering stems of all the Bugbanes droop slightly and give the plants an appearance of dignity and stateliness. The buds are like large pearls.

USES. All of the Bugbanes are suited to moist and shaded positions, and because of this, they naturalize themselves very easily along the edge of woodlands. The taller species are well suited for planting at the back of borders. All are good to use for cut flowers, but *C. foetida* var. *simplex* is especially so, because its flowers last longer when cut. The flowers have a bad odor if one gets too close to them.

CULTURE. Cimicifugas like moist conditions which are partly shaded, but they will endure the sun and for this reason they deserve wider cultivation. They thrive best in rich, leafmold soils. They need to be established for several years before giving the normal display of bloom.

PROPAGATION. They are propagated by division of the plant or by seeds sown as soon as ripe.

CLEMATIS—Herbaceous Clematis

(klem'-a-tis. From *klema*, a vine-branch.)

We shall speak here not of the Climbing Clematis, but of the lower growing sorts, useful for massing, all of which form dense bushes 2 feet or 3 feet tall.

Clematis heracleaefolia var. *davidiana*, the Fragrant Tube C., blooms nearly all Summer, has Hyacinthlike, bell-shaped, pale blue



The Fragrant Tube Clematis, a blue sort which does not produce a vine

or lavender-blue flowers in small clusters, which are very fragrant.

C. recta, the Ground C. grows 3 feet tall and has creamy-white, fragrant flowers, opening in June and July. The flowers are not unlike the climber, *C. paniculata*. All of the flower clusters are showy and are followed by fluffy silken seed heads. The leaves stay a bright dark green all Summer. Var. *mandschurica* is taller, with both terminal and axillary panicles of bloom.

C. integrifolia has undivided leaves and bears blue flowers with a high white center. The plant grows about 18 inches tall.

C. fremonti grows but 18 inches tall and has violet flowers which are thick, fleshy and bell-shaped. The leaves are simple, as

in *C. integrifolia*, and leathery. This species is found wild in Missouri and Nebraska.

USES. Many of the species are desirable for cutting. In the garden they should be planted in masses or used as specimen plants. *C. recta* is especially valued for large masses of white flowers.

CULTURE. These plants are adapted to partial shade. They prefer a loam soil and seem to like lime.

PROPAGATION. They are propagated by division of the plants or by cuttings. Internode cuttings are considered preferable to cuttings made with the basal cut through an eye.

CONVALLARIA—Lily-of-the-valley (Maybells)

(kon-val-lair'-i-a. From the Latin *convallis*, a valley and *rica*, a mantle; from the fact that the leaves make a mantle over the valleys. It was formerly called *Lilium convallium*, literally the Lily-of-the-valley.)

The poet has given the name to the Lily-of-the-valley, and the botanist, not as prosaic as usual, has translated the name to the Latin word *Convallaria*.

"No flower amid the garden fairer grows
Than the sweet Lily of the lowly vale."

USES. We must have this favorite with us the year round. In the Winter the florist grows Lily-of-the-valley in the greenhouse for weddings and for bouquets of various sorts. When they bloom in our gardens we cherish them as highly as any other flower for the lapel, the corsage or for the small vase. I saw a double variety in Huntington, West Virginia, which was superior in foliage as well as having large bells. In the garden they grow in the shady spots where some other flowers become pouty and will not grow. We must remember, however, that good soil, well prepared and heavily fertilized will suit the needs better than planting these lovely flowers under trees which will rob the plants of food, sunshine and a fair degree of moist growing conditions.

CULTURE. The culture is of the simplest. Give them shade and enrich the soil with manure applied in the Fall as a mulch. They increase rapidly and need to be replanted every three or four years in order that large flowers may be obtained. Try preparing a bed the best you know how and be surprised at the superior quality of the flowers.

PROPAGATION. When old clumps are dug they naturally fall apart and no plant could be easier to propagate. The individual sections of the rhizomes are sold, commercially, under the name of "pips."

COREOPSIS—Tickseed

(kor-e-op'-sis. From *koris*, a bug, and *opsis*, like; in reference to the appearance of the seeds.)

Coreopsis is surely one plant that should be in every garden as it is one of the most popular hardy yellow flowers. The common name, Tickseed, is very appropriate, because the seed of the plant looks like a bug; however, the flowers are exceedingly attractive. They first begin to bloom early in June and are a mass of gold until the frost kills them. The leaves are light green and narrow, while the flowers, which look like a Daisy, are golden yellow in color and measure from 2 inches to 3 inches across. The plant is bushy and spreading and the stems of the flowers are strong, wiry and graceful. *Coreopsis (lanceolata) grandiflora* is the species most worthy of cultivation. The plants attain a height of 3 feet and are especially in their golden glory during June. Perry has recently introduced a semi-double sort which cannot be reliably produced from seed.



Coreopsis, a well-known flower for cutting

C. verticillata, the Threadleaf C., is a small-flowered species with finely cut foliage. The plants bloom all Summer and grow 12 inches tall, spreading by underground stems.

USES. *C. grandiflora* is invaluable for use as a cut flower on account of its long, wiry, leafless stems. All sorts are good in the border, where huge clumps are very showy.

Coreopsis are nearly always planted in front of Delphiniums, and they combine well with Shasta Daisies.

CULTURE. They are of easiest culture, but prefer sunlight and rich, damp soil. The flowers must be kept picked in order to insure a long blooming period. If planted in the colder climates, they should have slight Winter protection, such as coarse straw or Pine boughs.

PROPAGATION. They are propagated by seeds and division of the plants. If the seeds are sown very early, the plants will bloom the first year, but if they are planted in July or August, the plants will bloom the succeeding year. Seeds should be sown every year, since the older plants tend to get woody and do not bloom as well.

CORONILLA—Crownvetch

(kor-oh-nil'-la. From *corona*, a garland; in reference to the head of flowers.)

The Crownvetch, *Coronilla varia*, is a creeper and grows less than 2 feet tall. The leaves are Locustlike with 11 to 25 leaflets. The flowers are pinkish, clustered into tight heads or umbels upon axillary stems. It is a native of Europe but has become naturalized in the Eastern States. There are flowers upon the plants from June to August.



The Crownvetch, *Coronilla varia*, is a plant you need if you have a steep bank

USE. Admirably adapted to covering steep, rough banks, the Crownvetch becomes a weed in the usual perennial border. Its mass of underground stems is as difficult to eradicate as Quackgrass. It may also be used as an undercover for shrubs.

PROPAGATION. A piece of the dense sod grows readily.

CORYDALIS (Capnoides), (Fumaria)

(ko-rid'-a-lis. From *korudalos*, a lark; the spur of the flower resembles that of a lark.)

These dainty little perennials are related to the Bleedingheart. They have compound, juicy leaves. The flowers remind one of Dicentra, only smaller and produced in terminal racemes.

The Chinese Corydalis, *C. cheilanthifolia*, as the species name indicates, has fernlike (like Cheilanthes, the Lipfern) foliage. The flowers are yellow and appear in April. The plants are practically stemless, less than 1 foot tall.

The Siberian Corydalis, *C. nobilis*, bears golden-yellow flowers which are green-tipped. They grow 9 inches tall and flower the middle of May. They die down soon after flowering.

The Pink Corydalis, *C. sempervirens*, is wild from Maine to the Carolinas and west to Minnesota. Its tiny pink flowers, slender stems and gray leaves are familiar to many lovers of wild plants, but this is an annual.

USE AND CULTURE. One thinks of the Corydalis as being pre-eminently fitted for the rock garden, although they may be included in the perennial border. They like shade or sun and tolerate drought. They do not like the heavy soils, but make themselves at home in rocky spots.

PROPAGATION. They self sow their seeds and sometimes spread too freely.

COTYLEDON (See Echeveria, page 143)

DAISIES

The word "Daisy" was formerly written Day's Eye, and the Daisies are really well named, for there is no season in the garden when some sort of Daisy is not in bloom.

The Shasta Daisy, *Chrysanthemum maximum*, is like a field Daisy seen through a magnifying glass. Most of us like the bright, Daisy-



Shasta Daisy, the giant among fortune tellers

like flowers and we are delighted with the Shasta Daisy because it blooms so freely and has long stems useful for cutting. As garden subjects they are low growing and are charming for use as edging plants. There are a number of named varieties, some early, others later, which are chosen for their blooming period as well as their size and character of petalage. They are readily propagated, both by seeds and division of the plants. Dampness in the Winter, not cold, injures them. If a light covering of straw is given during the Winter they will be well protected, but a thick covering will do more harm than good.

The Arctic Daisy (*C. arcticum*) is a splendid, low growing sort which is hardier than the usual Shasta Daisy and useful for rock walls.

The Giant Daisy (*C. uliginosum*) has a white flower, but differs from the field Daisy in that the plants are 4 feet to 7 feet tall. They are propagated by seeds or division and it is said that they bloom the

first year from seed. They are good background perennials and are also useful for cut flowers. Low, moist places are ideal for this Daisy. They are successfully naturalized.

For Painted Lady or Pink Daisy, see *Pyrethrum*, p. 231 and English Daisy, see *Bellis*, p. 102.

DAPHNE—(Garlandflower)

(daf'-ne. Named for the nymph Daphne.)

The sweet scent of the Daphnes endears them to the lover of garden gems. These plants are really shrubs, but because of their low growth and general habit, they more closely resemble the herbaceous perennials.

Daphne cneorum (Rose D. or Garlandflower). The bright pink, four-parted, fragrant flowers and evergreen leaves combine to make this plant truly beautiful. The plants are hardly a foot tall and bloom in April and in October. In pronouncing this species name the letter "C" is silent.

USES. The Daphne is adapted to the border and to the rock garden.

CULTURE. They grow in full sun or partial shade and light soils. They seem to dislike lime. Give them protection in Winter.

PROPAGATION. One can layer branches of the Garlandflower in the Spring.

DELPHINIUM—Larkspur

(del-fin'-i-um. From *delphin*, a dolphin; from resemblance of buds to a dolphin.)

Old John Parkinson, nearly 300 years ago, wrote "Wee call them in English Larkes heeles, Larkes spurres, Larkes toes or claws." The Larkspur is surely one of the oldest old-fashioned flowers, but it is becoming more popular today than ever. How choice are its colors! How suggestive is the word "lark" in christening this flower, as the lark comes from the sky, so comes also the color of the Larkspur. From the azure of the sky to the deep blues of the ocean depths in its range of blue. But blues are not the only colors; there are the pastel shades, not blue, or pink, which suggest the combinations of color in Copenhagen pottery. There are the dainty double pink sorts which suggest magnificent brocades. And what gems we find! Deep sapphires, superb amethysts, subtle turquoises and rich garnets. Like tiny peace doves are the white sorts.



A noble clump of Hardy Larkspur

And in form, how diverse ! We see the dolphin in the unopen bud. We note a bee gathering nectar from a bloom and find, instead, that it is the hairy petals at its center. We regard the tall spikes and see them covered by countless horns-of-plenty, some of them pouring gold.

USES. Can a garden be planted without Larkspurs ? Foliage, flower, habit and all, every garden lover must have them. The tall, the short, the perennial, the annual—they are indispensable in their

chosen places. Consider the long season of pleasure at seeing them in full splendor. Day after day in June, July, and often in September, new spikes open their blossoms. Erect and stately against a fence, majestic accents in a mixed border, sturdy and hardy in the cottage garden, as well as modest and delicate in the beds of annuals, the Larkspurs are incomparable. They bloom with Japanese Iris, Madonna Lilies. As a cut flower they are especially admired, the Belladonna sorts being incomparable when combined with Columbia Roses.

VARIETIES. The catalogs should be consulted for varieties of Larkspurs; there are many very superior named sorts which are improvements in color, form and length of spike over those usually raised from seed.

The modern race has been greatly improved through years of effort, especially in England. Recently we in America are developing varieties of our own which are better suited to our climate.

Besides the tall sorts, the garden lover should note the Chinese Larkspur *Delphinium grandiflorum (chinense)* listed in catalogs. This is a true joy as it blooms throughout the Summer, yielding short stems crowded with white, pink or violet flowers. The Chinese Larkspurs differ from most other perennial sorts by having finely divided leaves. The real enthusiast is tempted by reading the descriptions in the catalogs of certain sorts listed as *Delphinium nudicaule*, a dwarf orange-scarlet, *D. zalil*, a yellow, *D. cardinale*, a bright red. These sorts do not have the robust constitution nor the hardiness of the other kinds, but they are worth trying.

CULTURE. Delphiniums like plenty of sun. The soil should be rich, deeply prepared, a cool, friable loam. In heavy clay soil they are more apt to winterkill. Even hot, sandy soils, if watered and fertilized, will produce excellent results. Moisture will increase the size of the flowers and spikes, but it is not necessary to give the plants excess water when in bud or bloom unless they seem to be suffering. Cultivate the plants constantly with the hoe. It may be well to give the plants a little liquid manure just as the flower stalks start to grow. Many of the taller sorts are benefited by being staked, but this is best done before they actually need it. If the plants are cut back after blooming, cut the stalks just below the flower cluster. When this stem becomes unsightly, cut it back within a few inches of the soil. Give a period of rest, during which they are neither watered or cultivated, then if given bonemeal and an abundance of water, they will send up a second crop of bloom in the Fall. Some persons believe that this weakens the plants. No seed should be allowed to form to keep the plants in a

blooming condition. If the soil is not perfectly drained, dig up the plants and set them into a coldframe for the Winter.

TROUBLES. Some of the best sorts are frequently troubled with leaf spots and stem rots so that they sometimes live only a few years. Dig dry Bordeaux Mixture about the crowns or spray weekly with ammoniacal copper carbonate. In fact, keep the plants covered with this spray from early Spring until Fall. If you suspect that disease is in your soil, use bonemeal as a fertilizer, but never use manure. At the N. Y. Experiment Station it was found that cutting the plants down in August and spraying the soil and stalks with mercuric chloride solution (1 to 2000) proved effective.

Mr. Clifford Runyan has found that the so-called blight is really due to mite injury. The flower spikes become brittle, discolored and the flowers refuse to open. As soon as the plants are up about 6 inches, spray with Volck or nicotine compounds. Furthermore, it might be well to cut off the infested stems of the plants.

Sometimes cutworms and slugs eat the crowns of Delphiniums, so that it is wise to cover the crowns of the plants with ashes at the approach of Winter. Also use a poisoned bait spread at intervals near the plants.

PROPAGATION. Larkspur seed over a year old will not grow. Except for *D. grandiflorum*, the Chinese Larkspur, the seedlings will not produce flowers the first year unless sown in March in a hotbed or sunny window. Usually, however, fresh seed is sown in August, in which case they will bloom the next year.

Divide the plants every three or four years in order to keep them from exhausting the soil and becoming too compact in growth. Greater success attends Spring division just after growth starts.

The named varieties and double sorts, which produce no seed, may be rooted from cuttings. Some persons are successful in rooting these in frames during Spring. Samuel N. Baxter advises burying the cuttings in a heap of soil, head first, with only the cut ends exposed. The drying of the wounds for several days causes them to root more easily. Commercially it is wise to choose two-year plants dug in the Fall; heel in a coldframe until January; then set into a greenhouse bench in a house of a temperature of 50 deg. When the shoots are 3 or 4 inches long, take cuttings, but do not wait until the stems become hollow. It takes four weeks to root in sand at a temperature of 50 deg. The young plants can be topped later in the Spring and another batch of cuttings rooted.

DIANTHUS—Hardy Pinks, Sweet-william

(dy-an'-thus. From *dios*, divine, and *anthos*, flower.)

The Pinks and the Sweet-williams are still one of the old-fashioned favorites for the garden. There are many species and varieties, nearly all of which make dense tufts of grasslike growth. The early English writers used to tell us that the narrow-leaved varieties were called Sweet-johns and the broad-leaved sorts Sweet-williams.

The Sweet-william (*Dianthus barbatus*) is gorgeous when in bloom. The color scheme ranges from purest white to blackest red with an infinite number of variations and combinations of colors. The pink sort, known as Newport Pink, is a very desirable one with a distinct new color which florists call watermelon-pink or salmony-rose. Scarlet Beauty is another good variety, described by its name. The Sweet-williams grow from 1 foot to 1½ feet tall and bloom all Summer. The flowers are arranged in large clusters of bloom and those which are ringed and spotted are very novel.

The Grass or Garden Pinks (*D. plumarius*) are low growing plants which bloom in early Spring. The single and double flowers have fringed or jagged petals and are very fragrant. The colors range from white to bright scarlet and are very dainty, growing above a dense tuft



Clove Pink. Incomparable for edging



Sweet-william, an old favorite appearing at its best

of gray-green, grasslike leaves. There are many varieties found in the catalogs: Mrs. Sinkins, an old fashioned, very double white sort which always splits; White Reserve, less liable to split and a persistent bloomer; Essex Witch, pink; Louisa M. Alcott, deep pink; Lady Betty, light pink with deeper center; Homer, dark red; Little Dorrit, white with little red in center; Attraction, single pink with crimson eye; Alexander's Favorite, flowers very large.

The Sand Pink, *D. arenarius*, is a white sort which is very fragrant and of interest also because it endures shade. The stems are slender, 6-15 inches tall. The petals of the flowers are finely cut beyond the middle.

The Lilac Pink, *D. superbus*, is a light green plant, rather taller than most, with stems often 2 feet long. The leaves are not very rigid, flat. The flowers are lilac or pale rose, very fragrant, the petals deeply

cut. It tolerates partial shade. Treat this sort as a biennial as it soon exhausts itself. Give a rich, woodsy soil.

The Chinese Pink (*D. chinensis* var. *heddewigi*) is a biennial; that is, the seeds must be planted every year in order to have flowers the next. They also have a wide range of color and markings and are very popular. The double forms are especially attractive and the petals are often deeply and oddly cut. These sorts lack fragrance. They bloom later than the others and last until frost time.

Another interesting sort with flowers much like a Carnation is *D. latifolius atrococcineus*, the Double Cluster P. or Everblooming Sweet-william, which has intense crimson, double flowers. The plants grow 18 inches tall and are constantly in bloom in Summer. It is intermediate between the Carnation and the Sweet-william. The flowers, like those of Sweet-william are borne in clusters.

Among the dwarf varieties are found the Maiden Pink (*D. deltoides*), a dwarf trailer with rosy pink or white flowers which open from June to August. The improved variety is known as Brilliant.

The Cheddar Pink, *D. caesius*, is similar to the Maiden Pink, but the leaves are gray and the four bracts at the base of the flower are about one-third the length of the calyx, whereas in the Maiden Pink the two bracts are one-half the length of the calyx.

Resembling the Carnation, there is a race of excellent Pinks, the Allwood strain, which bears strong stems and well formed and bright colored flowers. It is cataloged under such names as Harold, Jean, Robert and Mary. In some of the regions with open Winters this strain is not as hardy as desired.

USES. The Pinks are very fragrant and free bloomers. They are good for cutting, and for the rock garden, together with the dwarfer sorts. All are good for edgings or to use in borders.

CULTURE. Most of the above Pinks are of easy culture. All like a warm soil and one that will not become too wet at any time. The plants will die out quickly if the soil is not well drained. They should be divided often, else the plants will choke themselves out. The Sweet-william should be treated as a biennial, sowing the seed each year. When not propagated each year the plants and flowers are not as large.

PROPAGATION. These plants often self-sow. They are all readily propagated from seeds sown in rich soil in April or May, although good-sized plants may be grown from seed sown in Midsummer. The double sorts must be propagated from cuttings if they are to come true. Layering has proven the easiest and surest way of propagating the Grass Pinks (*D. plumarius*).

DICENTRA (*Dielytra*) (*Bikukulla*)—Includes Bleedingheart, Squirrelcorn, Dutchmans-breeches

(di-sen'-tra. From *di*, two, and *kentron*, a spur; in reference to the two spurs on the petals.)

The grace of the *Dicentras* charms us whether in the woods or the garden, mostly blooming in April and May.

The Bleedingheart or Lyre-flower, *Dicentra* (*Dielytra*) *spectabilis*, is one of our most showy old fashioned flowers which everyone loves. It grows from 2 feet to 4 feet tall and spreads out almost the same distance. The leaves, which are a light, transparent green, are very neat, exceedingly graceful and very fernlike. The flowers are heart-shaped, varying from a light pink to a rosy crimson in color, and are produced in sprays along the stems. Have you ever taken one of these flowers apart to discover many interesting things—the two rabbits, a harp, grandpa's glasses and a bottle? The Bleedingheart is closely related to many of our daintiest woodland flowers.



Bleedingheart, or *Dicentra*, an old-fashioned flower of quaint charm

The Squirrelcorn (*D. canadensis*) has small tubers resembling a kernel of corn, the white flowers tipped with rose. The Dutchmans-breeches or Whitehearts (*D. cucullaria*) has white flowers tipped with creamy yellow, the flowers closely resembling their namesake. Both of these last two sorts are natives.

The Fringed, Everblooming or Plumy Bleedingheart (*D. eximia*) is said to have the handsomest foliage of any border plant. Its flowers are rosy pink and it is in bloom from May through September. It grows 9 to 12 inches tall and is a most worthy plant. As usually supplied by nurseries, *D. formosa* is similar. *Dicentra eximia* has the corolla separating to much below the middle, crests of inner petals projecting; *D. formosa* has corolla with a short neck, the petals united

to above the middle, the crests of the inner petals scarcely surpassing the spreading tips of the outer petals.

The Golden Eardrops, *D. chrysantha*, is a California species growing 5 feet tall with leafy stems. The flowers are soft yellow with short spurs and are borne erect in large paniced racemes.

USES. The Bleedingheart is excellent for the border or margins of shrubbery. It is also grown as a pot plant and it forces so well that it is useful as a window plant. The native, or woodland species, naturalizes beautifully along woodland walks, in the rock garden or in beds of ferns. The native sorts are poisonous when eaten by cattle.

CULTURE. As soon as the flowers of the Dicentras, except *D. eximia*, have finished blooming, the foliage dies down. This makes it difficult to keep track of the various sorts unless they are in locations not easily forgotten. They are very easy of culture, doing well in either shady or sunny positions, although they are more at home in the shade. They like a rich, light soil.

PROPAGATION. The Dicentras may be propagated from 1, seeds; 2, division of plants in early Spring; 3, from cuttings taken from young shoots soon after they start in Spring; 4, from cuttings taken from plants grown in the greenhouse (see below); 5, from cuttings taken soon after flowering; and 6, from root cuttings.

Soon after flowering there is a production of shoots at the base of the flower clusters and from the axils of the leaves near the tips of the shoots. These cuttings may be taken with a heel and rooted under a fruit jar or tumbler.

Greenhouse Propagation of Bleedinghearts. J. Mangels, Jr. in the *Florists Exchange* describes the process in detail:

"The stock plants should be, preferably, stocky one year olds, that have had one season in the open field; young growth from such plants has a greater tendency to root.

"When these plants are lifted in the Fall—being left in the ground until after the first few frosts to harden—they should be set in a greenhouse bench with an inside depth of from 5 to 7 inches and covered with a prepared soil of peat moss and well manured loam. The temperature desired is that which will produce good sturdy stems, not too soft through rapid growth nor too hard from snow growth; the range is from 60 deg. to 70 deg. F.

"When the time arrives to take the cuttings, we must exercise great care so as not to cut them too close to the node or point from which the leaves spring, since this will tend to make them bleed heavily and lessen their chances of rooting. A point a quarter of an inch below the node

gives, almost invariably, the best results. A clean cut must be made with a very keen blade, so that no bark tissues will be injured; and it must be made at a good angle, so that more of the several tissues come in direct contact with the moist sand.

"In placing the cuttings in the sand care should be taken not to press them too firmly (which is likely to damage the cut tissues) or place the flats where they receive too direct sunlight. The latter causes a loss of from three to four weeks in foliage growth, for when the tops wilt, new growth has to spring from the part of the stem nearest to the root, and this is not considered a favorable condition for rapid rooting.

"Another difficulty often experienced has to do with the water problem; neglect or ignorance here seems to cause more loss than any other factor. Yet in the case of Bleedinghearts there seems to be one way to determine almost exactly whether the plants have too much water or not. That is by slipping the index finger into the sand. If, as it is withdrawn, the sand adheres to the finger and the moisture in it sparkles, we know that the sand is too wet. If, on the other hand, the finger is clean when taken out of the sand, it shows that the sand is dry and needs more moisture. When conditions are just right the fine sand adheres to the finger without sparkling.

"If the temperature and water conditions are kept as they should be, the cuttings will be ready to pot up in about three weeks, with fairly well developed root systems.

"The potting process is not as simple as it might appear; that is, it requires as much skill and care, in its own way, as any other operation. The spreading of the roots in the pot, and the pressing down of the soil about them evenly should be done carefully and with much patience. If accomplished with the same untiring pains that should characterize all the work, the time it usually requires for sprouting to take place will be greatly lessened.

"When the cuttings have received a short start in the same temperature in which they were rooted, they can be moved outdoors into cold-frames, there to be gradually hardened and gotten ready for the field.

"Followed closely, this plan will result in a better percentage of healthy cuttings, and raising them to a good salable size without stunting."

ROOT CUTTINGS. To propagate the Bleedingheart by root cuttings, take up the plants when they start to turn yellow in late Spring and cut off some of the larger roots. The roots can then be cut into pieces 3 inches long and set in the soil several inches deep. During the first Winter they will need to be mulched. Quantities of plants can be raised by this method.

DICTAMNUS—(Fraxinella) (Gasplant), (Burningbush) (Dittany)

(dik-tam'-nus. A name adopted from Virgil, Fraxinella is literally a small Fraxinus, or Ash, in allusion to its ashlike leaves.)

The Gasplant is surely one of our most interesting plants. The odorous, glossy, leathery leaves are dark green and retain their deep



Gasplant, or Fraxinella, interesting not only for its flowers, but also for its seed capsules

color until late in Fall. The white, pink and purplish brown flowers are borne on spikes 2 feet to 3 feet high. Both the foliage and flowers are fragrant and when the parts are crushed in the hand, they have the fragrance of a Lemon. The Gasplant begins blooming shortly after Memorial Day, and the seeds ripen about the middle of August. The whole plant gives off a strong, volatile oil which will give a flash of light if a lighted match is held under the clusters of seed capsules on a sultry Summer evening. E. A. Orpet reports that the flower heads and especially the seed vessels are highly poisonous to some persons whose hands are not hardened by exposure. This Gasplant (*Dictamnus albus*) is a very strong grower and when once established, many dozen stalks of bloom can be had to a single plant.

USES. Because of its large trusses of flowers and fascinating odor, the Gasplant always finds a place in the hardy border, or as a single specimen. They make excellent cut flowers.

CULTURE. The Gasplant dislikes disturbance very much. When once planted it should be left in the same position always, for as the plants grow older they will then produce many more and taller flower stems. They require hardly any care, but prefer a rather heavy and moderately rich soil in an open, sunny or partially shaded position. When once established drought does not affect them.

PROPAGATION. They are more easily raised from seeds than by root division. The seeds should be sown as soon as they are ripe in the Fall. If the seed is sown in the Spring, pour boiling water over them first, or they will not germinate easily. It often takes four years for the flower spikes to appear on young plants.

The roots, being very hard, may be divided with difficulty.

Gardening Illustrated contained a note by R. F. who says that root cuttings may be used. Cut the fleshy roots into 3 inch lengths in early Spring and insert in pots of sandy soil.

DIGITALIS—Foxglove, (Witches-thimbles)

(dij-i-tay'-lis. From the Latin *digitale*, a finger.)

"The Foxglove, in whose drooping bells the bee
Makes her sweet music."

—B. CORNWALL.

A well grown Foxglove in full flower is a plant of dignity and beauty. The long flowering spikes grow from 3 feet to 6 feet tall, rising high above large clumps of broad, downy leaves. Upon the flowering stalk, the flowers open slowly as the impulse to bloom moves upward. This tends to lengthen the blooming season. The flowers are tubular or bell-shaped and hang closely on one side of the stem. This arrangement is more apparent than real, for the flowers really originate on all sides of the stem, but the short stems somehow twist around so that they all seem to be on one side. These spikes which are so tall and erect, bear the small, thimblelike flowers in many colors—white, lilac, purple, rose and yellow—with odd and various shadings and markings. They bloom in June and July.

D. purpurea is the sort, wild in Europe, which bears rosy purple to white flowers. They are biennials which sometimes bloom for more than a year. The forms commonly cultivated are known as Gloxinia Foxgloves inasmuch as their flowers are more bell-shaped than the wild sort. The Shirley Strain, developed by Rev. W. Wilkes of England,



A mass of Foxgloves we all may have

is magnificent, and grows 5 to 7 feet tall. There is, however an interesting form known as *Monstrosa*, *Campanulata*, or the Mammoth Foxglove, which has a large, saucer-shaped flower surmounting the spike.

D. ambigua (*grandiflora*) is the yellow flowered species. It has smaller, narrower leaves and does not attain the height of *D. purpurea*; it is not as good as the commoner sort.

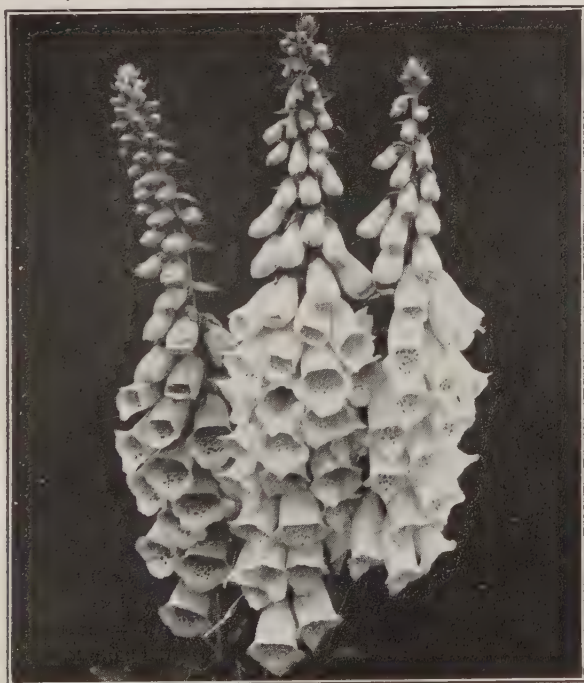
The Grecian or Woolly Foxglove (*D. lanata*) is an interesting sort with long, dense spikes of small, grayish flowers marked with yellow. This sort does not resemble the other Foxgloves. It is a perennial.

USES. They are planted in masses in the garden among the shrubs, in solid beds, in the border, in the orchard or naturalized on the edge of the woods or along brooks. Wherever they are planted, they give an appearance of strength and dignity. They are excellent for decorations where tall spiked flowers are needed.

Foxgloves combine beautifully with Sweet-williams and Grass Pinks. A whole border of this combination is suggested.

Foxgloves need no edging plants as their foliage is most attractive, even at the soil.

CULTURE. Foxgloves succeed well in any garden soil which has been enriched with old manure. They are said to resent lime and prefer the peaty soils. They naturalize very readily in half shaded positions, but will grow in full sunlight if the ground is moist. If the main flowering stem is cut after it has finished blooming, many others will come up. Liquid manure should be given to the plants during the flowering season. They require a light Winter protection, which must not be given, however, until after a good freezing of the soil. Dry leaves or pine boughs will serve as a sufficient covering for the foliage. Dampness,



The Foxglove, *Digitalis*, is one of the best beloved biennials. The Shirley strain is a decided improvement over the older sorts

either from ill-drained soil or too much mulching, will injure the plants quicker than anything else. The leaves must be kept dry and on mild days plenty of air should be given to prevent sweating and heating.

PROPAGATION. Foxgloves are propagated most easily from seeds which should be sown every year in order to have blooming plants the next year. The Foxgloves are treated as biennials. The seed should be sown in late Summer or Fall and wintered over in pots in the coldframe. When the plants are once established they should not be disturbed, although new plants can be started by root division.

DORONICUM—Leopardbane

(dor-on'-i-kum. From its Arabic name, Doronigl.)

The Leopardbane is the earliest Daisylike flower and one of the few hardy plants which blossom very early in the Spring and continues into the Autumn. It grows about 2 feet high and has broad, oblong leaves of a rich, soft green color which appear with the first signs of Spring. The single flowers are produced on long, stiff stems and resemble a very large yellow Daisy with a yellow center.



Doronicum plantagineum (*excelsum*) is the tallest sort. The flowers are 4 inches in diameter and the plants grow 3 feet tall. They begin to bloom in early Spring and continue through the Summer.

D. caucasicum grows 12 inches to 18 inches tall, and has coarsely toothed leaves, heart shaped at the base.

The Austrian L., *D. austriacum*, is a hairy sort, growing 2 feet tall with leaves heart shaped at the base and with petioles which clasp the stems. The flowers are smaller than *D.*

Leopardbane or Doronicum, a glorious, Daisylike flower of April

plantagineum. Unlike *D. caucasicum*, the stems are several flowered.

The catalogs also include *D. clusi*, the Downy L., and except for clasping leaves which are toothed, it resembles *D. plantagineum*, which is earlier to flower.

USES. Because of their long, straight stems, they make excellent cut flowers and they last for a number of days when placed in water although they close at night. Because of their rich golden color, they are splendid for the border, for they begin blooming when yellow flowers are rather scarce. If placed in pots, they can be easily forced into flower during the Winter months for the window garden. They succeed well when planted among the Spring bulbous flowers and shrubs or in the rock garden, and they are equally attractive when planted in masses or when used as single plants. They succeed with but little sunlight.

CULTURE. They grow readily anywhere if planted in rich loam and are equally good in shady or sunny positions.

PROPAGATION. The plants should be divided about every two years soon after they finish flowering. They may also be raised from seed.

ECHEVERIA

(ek-e-veer'-i-a. Named for Atanasio Echeverria, Mexican botanical draughtsman.)

The Echeveria includes a group of rosettelike plants which resemble the Houseleeks or Sempervivum and Cotyledon. They differ only in technical botanical characteristics. In Sempervivum the flowers are 5 to 20 petaled which are distinct to the base whereas the corolla of Echeveria and Cotyledon is lobed to middle or less; that is, the flowers are gamopetalous. Echeveria has a corolla with an elongated tube. Echeverias are American species.

Cotyledon has a corolla with a short tube, scarcely exceeding the calyx. Cotyledons are European and African plants.

SPECIES. *Echeveria secunda* (Cotyledon). The gray rosettes are commonly seen in park and cemetery formal carpet beds. The leaves are often pinkish at the edges. The red blooms are produced on one side of the stem (hence name *secunda*). The rosettes freely produce rosette offsets. This is not hardy in the North.

E. gibbiflora (Cotyledon). These are Mexican plants sometimes 2 feet tall, branched. The commonly cultivated form, var. *metallica*, the Bronze E., has purple leaves with grayish cast and rather metallic. The leaves of both sorts often grow 5 to 7 inches long and though they are grouped in rosettes near base, yet they also associate themselves together at the ends of the branches.

E. agavoides. A small, compact plant with stiff leaves in dense rosettes, sharp pointed, less than $2\frac{1}{2}$ inches long, gray green on both sides. The flowers are yellow red on stems 8 to 12 inches long.

There are, of course, many species but only those mentioned are found commonly.

Being tropical succulent plants they require but little water, a well drained soil and greenhouse or tropical conditions.

PROPAGATION. *E. secunda* produces rosettes freely in the axils of the leaves. These are removed and placed in flats of almost pure sand though some loam may be added.

"The other method of increasing stock mostly in use is to take the leaves firmly in the hand and twist them first one way and then the other until they break away and bring an eye with them," writes C. W. in *The Florists' Review*. "They are of no value without the eye, as they will make roots, but no plant will appear".

"After they have been carefully removed, place the leaves in flats of sand on a shelf, but do not give them any water until little plants begin to show. The ends of the leaves severed from the stems should have a little sprinkling of sand over them. Water must be given sparingly at all times, as these cotyledonary plants are of a naturally arid nature and resent the supplies necessary for the well being of other bedding plants. When the little plants are well started, they can be potted or pricked off into flats of sandy soil. Be sure to give them full sunshine all the time and only a moderate water supply."

ECHINACEA (Brauneria)—Hedgehog-coneflower (Purple Coneflower), (Black Sampson)

(ek-i-nay'-se-a. From *echinos*, a hedgehog, referring to the bristly bracts.)

The bold and hearty character of the Purple Coneflower makes it a striking plant because it breaks the great masses of dominant yellow in late Summer. The flowers are rosy purple with dark, stiff, quill-like centers touched with golden crimson. *Echinacea purpurea* is the common sort and is frequently listed in catalogs under *Rudbeckia purpurea*. Sometimes when plants are raised from seed objectionable muddy colors are obtained which are not worthy a place in the garden. The plants grow 3 feet to 4 feet tall and bloom from July until frost. The leaves are large and thick.

USES. The drooping habit of the rosy purple petals gives this flower a distinctive character in the border, although the color at best is difficult to combine with other flowers. The plants have a stiff growth.



Purple Coneflower, or *Echinacea*, with high, quill-like center



Globethistle or *Echinops*, unique and "something different" for the border

CULTURE. They will tolerate dry, sun-baked locations but are better in good soil.

PROPAGATION. The easiest method of increasing these plants is to divide the clumps. From seeds the colors of the flowers are often muddy.

ECHINOPS—Globethistle

(e-ky'-nops. From *echinos*, a hedgehog, and *opsis*, like; referring to the spiny scales of the flowers.)

The Globethistle is very interesting if one likes thorny, prickly plants. The leaves are large, deeply cut and very prickly. The stems are silver white, while the flowers are either white or a grayish metallic blue. The flower heads are round like a ball and are entirely covered with needlelike thistles. All of the species bloom from June or July through September. The Steel Globethistle, *Echinops ritro*, has deep, steel blue flowers and grows about 3 feet high. *E. sphaerocephalus* is the tallest growing species, attaining a height of from 5 feet to 7 feet

with large, white flowers, glandular sticky stems, and rough hairy leaves.

USES. All the Globethistles are distinctive plants and are well adapted to plant in borders, among shrubbery or to use as bold specimen plants. The flower heads, which are excellent for cutting, can be dried and will remain attractive for months. They are also suitable for naturalizing in wild gardens.

CULTURE. They are of easiest culture, growing best in a light or gravelly soil.

PROPAGATION. They are propagated by seeds, root cuttings or division.

EPIMEDIUM—(Bishops-hat), (Barrenwort)

(ep-i-mee'-dl-um. From *like* and *Medion*, like a plant growing in Media.)

After reading the description of the Epimedium by Miss M. R. Case in "Horticulture," we have decided to abandon all hopes of describing this dainty flower in our own crude words. She writes:

"Blossoming under a great Oak, where Maidenhair and Dicksonia ferns grow to perfection, is a dainty herb from Japan known as the Bishops-hat, from the square, flat shape of its blossoms.

"The blossoms are in loose sprays which branch off from the main stems 2 inches below where the main stem divides into the three sprays which bear the leaves. They come in buff or soft yellow, mauve and white. The one which has done the best at Hillcrest, *Epimedium macranthum*, give the bishop a yellow lining to his dark red hat. It is well arranged for his grace's comfort, as under the square, flat hat is a little cap to hold it well in place. It is so pretty a hat that we hope it is in the ritual of the floral world for it to be worn in the ceremonies of their service.

"The loose spray of blossoms is 6 inches long from where it branches from the main stem. The whole plant is more than a foot in height; the single flowers about the size of a dime. The pretty red buds are on the spray with the flowers.

"The leaves are a soft yellow green, parallel veined and pointed at the apex. The main stem divides into three sprays for the leaves. The whole plant has an airy, unusual and very pleasing effect. The old leaves persist on the stems through the Winter and have to be gathered with the Spring litter from the gardens.

"It should not be confused with the Bishopscap, Mitrewort or Mitella which more nearly resembles the Tiarella or Foamflower. His Grace, the Bishop, is well adorned in Puritan New England."

Some of the species are *E. alpinum*, with gray, crimson and yellow flowers; *E. macranthum*, with Lilac flowers; *E. niveum*, with white flowers, and *E. musschianum*, with golden yellow blossoms.

USES. Although these plants should be prized more for foliage than blooms, there is probably no other flower which lasts so long in water as do the Bishops-hats. If they are picked close to the ground when the leaves are mature, they will last at least two months in water. They are good for pot plants and for the border where they should really be planted in masses in order that their delicate flowers may be appreciated. They are excellent plants for the rockery. They will serve as ground covers beneath evergreens.

CULTURE. They prefer a moist, sandy loam and partial shade. If planted in the rockery, they must not get too dry. The soil should not be disturbed around them at any time, as it injures the roots.

PROPAGATION. They are propagated by dividing the roots. This can be done in either Fall or Spring.

ERIGERON (*Stenactis*)—Fleabane

(ee-rij'-er-on. From *er*, the Spring, and *geron*, old man. Some sorts are somewhat hoary.)

The Erigeron has Asterlike flowers which are in bloom during the Summer months. The different species vary in height from 5 inches to 3 feet. The flowers grow from small tufts of leaves, somewhat like the English Daisy (*Bellis*) and the blooms of the taller varieties measure 2 inches and 2½ inches across. The colors are violet blue, bright purple, apricot, rose and rosy lavender and these colored petals surround a golden yellow center.

Erigeron (Stenactis) speciosus is the commonest cultivated sort. It has bright purple flowers, grows 2 feet tall, and blooms all Summer. *E. glabellus* is a dwarf sort growing from 6 inches to 12 inches tall and with large, light purple flowers. All of the Erigerons spread to form dense bushes of growth and the flowers are in groups of from three to five to a stem or head.

USES. The Erigerons are fine to use for cut flowers and are used in the hardy border. The smaller kinds are excellent for rockwork and the front of borders.

CULTURE. When planted so that they get some shade during the middle of the day, they will continue to bloom for a longer season.

PROPAGATION. The simple method of propagating the Erigerons is to divide the clumps in Spring. Even early Spring-sown seed results in good bloom the first season.

ERINUS—Liver-balsam

(ee-ry'-nus. From *er*, Spring, referring to the early flowering.)

The Alpine Liver-balsam, *Erinus alpinus*, is a thoroughly successful rockery plant with dainty leaves not much larger than some mosses. The flowers are small, red purple, produced during May. A white variety is also seen but it is said to be less hardy. The five-lobed flowers are produced in racemes $2\frac{1}{2}$ inches long and are related to Snapdragons although they are not lipped.

USE AND CULTURE. They prefer the less sunny spots in a rather dry rockery. They are lime lovers.

PROPAGATION. Sow the seeds where they are to grow. They prefer to self-sow.

ERODIUM—Heronbill

(ee-roh'-di-um. From *erodios*, a heron. The seedpods and pistils are long like a heron's bill.)

Related to the Geranium, the Heronbill is an interesting rock garden group. The Pyrenees Heronbill, *Erodium manescavi*, is the species most commonly seen. It grows 18 inches tall with pinnate leaves, all of which grow from the soil. The flowers are rosy purple. They bloom from June to August.

E. absinthiodes var. *amanun* (*E. armenum*) has bipinnate, silvery leaves, grows 8 inches tall, and bears white flowers. It thrives splendidly in the Midwest rock gardens.

CULTURE. The Heronbill thrives in dry, sunny positions in a gravelly soil. It stands extremes of heat and cold.

PROPAGATION. Seed, division of plants, and cuttings with roots attached are common means of propagation.

ERYNGIUM—Eryngo, Seaholly, (Ivorythistle)

(e-ring'-i-um. From the name given by Dioscorides.)

This is a prickly plant in every feature—the leaves are prickly, the flower heads are surrounded by spreading, prickly floral bracts and the flower head itself is like a small Teazle. The beauty of this plant depends upon the blue gray effect which it presents. They grow to a height of 3 feet and bloom from June to September.

Eryngium amethystinum has amethyst colored flowers and grows at least 2 feet tall.



Eryngium oliverianum is one of the choicest of the Seahollies

E. planum has numerous small, nearly globular flower heads and shining stems and leaves which are three to five parted.

E. maritimum, the true Seaholly, has whitish or pale blue flowers and grows 1 foot tall, with fleshy leaves, more or less three-lobed, with coarse, spiny tips, more rigid than in other sorts.

E. oliverianum grows 3 feet tall and has large, cylindrical flower heads of deep blue flowers with leaves that are four to five parted.

Very different from these cultivated sorts is a wild one found in Eastern U. S., as well as in the prairie regions. It is known as the Button-snakeroot (Rattlesnake-master) *E. aquaticum* (*yuccaefolium*). The leaves are long-linear like those of *Yucca*, bristly margined, sometimes 3 feet long and $1\frac{1}{2}$ inches wide. The flowers are produced on stems 1 to 6 feet tall, in July to September, white or pale blue.

USES. The *Eryngium* is most effective in a perennial border or rockery, and its uses as a cut flower are many. It is very decorative

for basket work, or combined in vases with *Gladiolus*. The branches can be dried, so that the flowers can be used in Winter bouquets. The plants are used in wild gardens.

CULTURE. *Eryngiums* thrive best in full sun, in light, limey, sandy loam. They withstand dry seasons well and when once established should not be moved often inasmuch as they are not easy to establish although young plants transplant readily.

PROPAGATION. They are raised from seeds, but some have found that certain of the sorts are rather capricious although the plants frequently self-sow their seeds and spread rapidly. Sow the seed as soon as ripe, in which case they germinate the next Spring. The plants are divided with difficulty.

EUPATORIUM—Thoroughwort, (White Snakeroot), (Hemp-agrimony), Mistflower, Joe-pye-weed

(eu-pa-tor'-i-um. Named for Mithridates Eupator, King of Pontus, who discovered a species to be an antidote against poison.)

How often we are tempted to praise the beauties of some foreign flower while our excellent native ones pass by with little attention. There are many sorts of *Eupatoriums* and most of them can be found growing wild in our own country.

The Hardy *Ageratum* or Mistflower (*Eupatorium* or *Conoclinium coelestinum*) has myriads of small fluffy, azure blue flowers which are in bloom during August and September. The plant reaches a height of 2 feet. It is often confused with the annual *Ageratum* which does not produce clumps and generally has green rather than purple stems.

The Snow Thoroughwort or White Snakeroot (*E. urticaefolium* or *ageratoides*) has pure white flowers and grows from 4 feet to 5 feet tall.

Boneset (*E. perfoliatum*), which also has white flowers, only grows 2 feet or 3 feet tall. The leaves of this sort are in pairs, united at the base about the stem, known botanically as perfoliate leaves. Its name Boneset is derived from the fact that it is a reputed cure for "break bone fever" a painful ague of other days.

The Joe-pye-weed (*E. purpureum* and *maculatum*) is very tall, growing from 4 feet to 10 feet and has large, purple, showy heads of flowers. The leaves are in whorls. Most of them bloom in late Summer or early Autumn with an average height of 3 feet to 5 feet. The name is derived from Joe Pye, an Indian herb doctor of Pilgrim days in Massachusetts. He is reputed to have cured typhus fever from a decoction of the plant.

USES. The Joe-pye-weed is found in wet meadows or along streams

and would naturalize easily along woodland streams, or moist places in parks. The Mistflower and the Snow Thoroughwort are excellent for cutting purposes. All Eupatoriums are good in borders with the taller ones in the background, or to naturalize in woodlands. Some of them are excellent to use with shrubs.

CULTURE. They are of easiest culture, growing in almost any soil, although a rather light, well drained soil and a sunny position will produce large plants with numerous blooms. They all tolerate shade. The Joe-pye-weed, however, requires a moist situation.

These plants increase in profusion of flowers and size of trusses when transplanted from the wild.

PROPAGATION. They are propagated from seeds or by division of the clumps.



The shady slopes may be covered with *Eupatorium ageratoides*.
Haven't you a shady place for them?

EUPHORBIA—Spurge (Wolfmilk)

(eu-for'-bi-a. Named for Euphorbus, physician to king of Mauritania.)

This is a group of plants having a milky juice in stems and leaves. All are familiar with the Poinsettia of Christmas which belongs here but, of course, is shrubby.

The Flowering Spurge, *Euphorbia corollata*, is commonly seen as a wild plant from Canada to Florida and Texas. The flowers are in umbels with white appendages. They last well when cut. The leaves are linear or oblong. The plants grow less than 3 feet tall. The flowers are often confused with those of annual Babysbreath.

The Cypress Spurge, *E. cyparissias*, is extensively planted but few people have a name for it. The leaves are linear, said to resemble a conifer. Brilliant yellow bracts surround the tiny flowers. Although



Few Spring rock garden perennials give such abundant masses of yellow flowers as the *Euphorbia epithymoides*

a European plant, many consider it to be wild because it is naturalized in cemeteries and waste places.

The Cushion Spurge, *E. epithymoides* (*polychroma*), grows 2 feet tall and 3 feet in diameter, and is a showy perennial for the border or rock garden. The upper leaves are golden yellow and seem to be flowers. They make their display in early May with the Tulips.

Many sorts are Cactuslike and grown in sub-tropical regions; others are annuals.

CULTURE. They succeed in sandy or dry soils.

PROPAGATION. The plants may be divided.

FERNS (See page 37)

FILIPENDULA (*Ulmaria*)—Meadowsweet

(fil-a-pen'-deu-la. From Latin for *hanging thread*, referring to the way the tubers of some species hang together by a thread.)

The commoner species, the Dropwort, but often known as the Queen-of-the-meadows, *Filipendula* (*Ulmaria*) *hexapetala*, is a tufted, fern-leaved plant. The leaflets are in ten to twelve pairs. In late June and during July the plants send up flower stalks 18 inches tall, bearing masses of white flowers. The double sort, *florepleno*, is dwarfer and more showy than the single.

F. purpurea and its variety *elegans*, together with *F. rubra* and *F. palmata* have red and pink flowers produced in large clusters, the crimson flower stems growing 3 feet tall. They bloom from June to August.

F. camtschatica, the Kamchatka Meadowsweet, has immense plumes of white flowers. It grows 6 to 8 feet tall.

F. hexapetala, because of its dwarf growth, is useful as an edging plant. Cut sprays of all sorts add much to a bouquet in the home. They prefer a rich soil and an abundance of water while in bloom; for this reason they are well planted at the waterside. They are at home in half shade.

PROPAGATION. The habit of growth by forming dense clumps suggests the easiest method of increasing the plants; that is, by dividing them with a strong knife.

FUNKIA (See Hosta, page 179)

GAILLARDIA—(Blanketflower)

(gayl-lar'-di-a. Named for Mons. Gaillard, a French patron of botany.)

The satisfactory Blanketflowers deserve a place in all gardens. They are showy, bloom under adverse conditions and are easy of culture. The great improvement in colors which has gone on in recent years is marvelous. There are both annual and perennial species, both



Gaillardia or Blanketflower, bright and showy flowers in keeping with the Fall season

of which have become so varied in their form and colors that the best test of a perennial sort is to wait until Spring. If it lives through the Winter and blooms the next year, it is perennial. The perennial sorts are cataloged as *Gaillardia aristata* (*grandiflora*). The flowers are often clear rich yellow or clear wine red, but usually the petals are broadly margined with yellow and the remainder of the flower is some shade of crimson. The centers of the flowers are frequently a deep maroon. *Gaillardia Portola* is a superior variety, less open in habit. The flowers are scarlet with copper tint and have golden yellow tips. *Golden Gleam* is a yellow variety.

USES. Gaillardias are especially good for the perennial

border where they start to flower in June and continue after many other flowers are killed by the frost. They are also prized as cut flowers and for this purpose should be cut when the flowers are slightly cup-shaped before the petals have reflexed. Without apparent harm the flowers may be kept out of water in carrying them from one place to another.

CULTURE. All persons who have grown Gaillardias know that they bloom even during protracted droughts. They prefer the full sun and a sandy soil. Gaillardias do not succeed in cold, heavy soils unless sand is added. Old plants have a tendency to become "blind," that is, they grow nicely but produce no flowers. Such clumps should be dug and divided.

PROPAGATION. When raised from seed they do not bloom the first year unless started very early. They are easily raised, however, the seed germinating in five to eight days.

Break up old plants in early Spring into several pieces.

"The Canadian Horticulturist" describes the propagation of the better sorts by root cuttings:

"Lift field grown plants in late Fall; cut up the roots into pieces about one inch long and sow thickly in seed flats. Cover with one-quarter inch of clean sand, press down snugly and place on a shelf in a cool, light house, giving just enough water from time to time to keep them from drying out. The young plants will appear shortly and after the root-pieces are rooted (that is, made some new fibrous roots of their own), pot off into 2½ inch pots until planted out. Get them into the ground early and they will bloom nicely the first year and make large clumps for Fall sales.

"Stem cuttings may be taken in August and September from the new shoots which spring up around the base of the flower stalks."

GENTIANA—Gentian

(jen-shi-ay'-na. Named for Gentius, king of Illyria, who first discovered the virtue of Gentian.)

TO THE FRINGED GENTIAN

Thou blossom bright with Autumn dew,
And colored with the Heaven's own blue,
That openest, when quiet light
Succeeds the keen and frosty night.

Thou waitest late, and com'st alone,
When woods are bare and birds are flown,
And frost and shortening days portend
The aged year is near his end.

Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if the sky let fall
A flower from the cerulean wall.

—WM. CULLEN BRYANT.

There are almost as many Gentians in poems and books about flowers as there are real Gentians in the woods. Two sorts are to be found by much hunting through United States. They are the Closed Gentian (*Gentiana andrewsi*) and the Fringed Gentian (*G. crinita*). The Closed Gentian is of interest because it blooms from September to November, but the flowers never open, remaining in large, budlike form. The flower stems are 1½ feet tall and the purplish blue flowers

are borne in clusters in the axils of the upper leaves. The plants are found growing on damp hillsides and in meadows.

The Fringed Gentian is more beautiful and less common. It is the most modest flower of our woods and hides itself away in the open places. The flowers are bluish and have a delicate fringe at the margins of the petals. Unlike the Closed Gentian, they are borne singly upon the apex of the stems.

CULTURE. The Gentians are difficult to transplant and if seed is sown, it should be fresh, otherwise it will not grow. The Closed Gentiana may be grown in moist meadows but they should have no lime in the soil. The Fringed Gentian is a biennial which is extremely difficult to grow. The first year the plants make only a very tiny rosette of



Closed or Bottle Gentian, one of our choice wild
flowers

leaves which escapes attention. The next year the plants bloom and die. Coming so late in the year, the plants often find difficulty in producing seed for they are generally frozen. If fresh seed is obtained, sow in pots. All sorts prefer partial shade.

GERANIUM—Cranesbill

(jer-ay'-ni-um. From *geranos*, a crane; referring to the beaklike projection beyond the seeds.)

The plants, usually called Geraniums, are really *Pelargoniums* and do not come within the scope of this book. The true *Geraniums* are hardy perennials growing 12 inches to 18 inches tall. They range in color from lilac to rosy purple.

SPECIES. Armenian Cranesbill. *Geranium armenum*. Bailey says correct name is *G. psilostemon*. This sort grows 2 feet tall. The leaves are deeply five lobed. The flowers are dark, red spotted at the base with black, about $1\frac{1}{2}$ inches in diameter, blooming May to July.

Rocky Mountain C., *G. fremonti*. Quite evergreen, this species makes a rosette of five to seven lobed leaves. The flowers are rose purple less magenta than some. It is a native of Utah, Arizona, Idaho and Colorado.

Iberian C., *G. ibericum*. Plants grow 18 inches tall. The leaves are silky, seven-lobed nearly to the base. The purple flowers with darker veins are $1\frac{1}{4}$ inches across in June. Var. *platypetalum* has five-lobed leaves, silvery downy, a larger plant. The leaves of both sorts turn red in Fall.

Wild Geranium (Spotted Cranesbill), *G. maculatum*. This sort is found through much of North America. The leaves are three to five lobed. The flowers are magenta varying from dark to light. The plant is hairy.

Meadow C., *G. pratense*. The plants grow 3 feet tall. The leaves are 7-parted. The flowers are purple, almost $1\frac{1}{2}$ inches across, in June and a few later.

Herb Robert., *G. robertianum*. This sort has tiny magenta flowers and deeply three-cleft leaves. The plants are encountered frequently in very moist, rocky woods. They are easily distinguished by their peculiar odor. This is a biennial sort but will self-sow itself year after year. It is also called Red Robin, Redshanks, and Dragonblood C. The leaves turn red in the Fall.

The Bloodred C., *G. sanguineum*. This is a prostrate sort which bears purple crimson flowers, one to the stem, but in great profusion.

Var. *prostratum* (*lancastriense*) is dwarfer, more compact and with lighter flowers. Var. *album* has white flowers.

USES. The smaller plants are excellent for pot culture or to use as edgings for borders. Many are grown in rockeries and wild gardens, in which situations Herb Robert and the Spotted Cranesbill are especially attractive. Sometimes the flowers are cut and used in small basket or vase decorations.

CULTURE. Geraniums do nicely in moist places. The wild sorts will not stand the hot sun. Any good garden soil will do. They thrive best transplanted in the Spring.

PROPAGATION. They are propagated by sowing the seed during the latter part of Summer and are usually wintered in coldframes.

GEUM—Avens

(jee'-um or gee'-um. From *geyo*, to stimulate. The roots of some sorts have the same properties as Peruvian Bark.)

Among our pernicious weeds is one whose seeds are provided with hooks which catch in our clothing when on a Summer walk through the woods. This is a Geum. It is a surprise, therefore, to find several excellent perennial flowers as its relatives. The common species, *Geum chiloense*, or *coccineum*, as it is less properly called, grows from 12 inches to 18 inches high with hairy leaves, somewhat resembling those of a Strawberry. The flowers are both double and single and are borne on branched stems in great profusion. The variety Mrs. Bradshaw, is a popular one to grow. It has very large flowers from 1½ inches to 3 inches across with large, wavy petals of a bright crimson color. Lady Stratheden is a deep gold yellow variety. The Geums bloom freely from May through October. The Orange Avens, *G. montanum* var. *heldreichi*, produces orange flowers through the Summer and grows 12 inches tall.

USES. The Geum is a most excellent flower to use for bouquets. It wilts readily and when the flowers are cut they should be put in warm water. They are also good for borders and rockeries.

CULTURE. Geums will grow in full sunlight or partial shade in any garden soil and thrive very well among rocks, but are quite sensitive to cold and wet feet in Winter.

PROPAGATION. They are produced from seeds and cuttings. T. A. Weston says that Mrs. Bradshaw can be raised from seed.

GRASSES, Ornamental

This unique group of plants is not nearly so well known nor are the many excellent sorts as often seen as their merits deserve. Bamboos and Grasses are splendid for tropical effects and particularly to be admired for large beds, for the edging of ponds and streams or for combination in the perennial border. Plant all sorts in a rich, moist loam in a place protected from strong winds.

PROPAGATION. The varieties of grasses with variegated leaves are usually propagated by division rather than seed because, in most cases the variegations are not propagated true. Propagation by division is easily done in early Spring. Merely cut the clumps into pieces 3 inches or 4 inches across. Such divisions when planted a foot apart will, at the end of the season, increase the apparent size of the clump.

Many of the grasses, however, are propagated from seed sown in the early Spring. Ornamental grass in its young stages of growth appears to be so small that one has a feeling that it need not be given a great deal of space. Crowded grasses do not thrive, so that they should be transplanted when small and given plenty of space to develop.

ARRHENATHERUM—Oatgrass

(ar-ren-a'therum. Named for its botanical characteristic of having a long hair or awn on the male spike, being derived from *arrhen*, a male, and *ather*, a point.)

Arrhenatherum bulbosum variegatum is a dwarf, decorative grass of tufted habit, growing only 8 inches high. The green and white leaves do not retain their clear color throughout the season, but the plants die to the soil in Summer sprouting up again after a little rest. It is used where a white edging or border is desired. A curious feature of the plants is the beadlike strings of yellow cormels beneath the surface of the soil.

ARUNDO—Giant Reed

(a-run'-doh. Old Latin name for a reed.)

The Giant Reed, *Arundo donax*, is the tallest of the ornamental grasses, sometimes growing in rich, deep soil to a height of 20 feet. The long, drooping leaves of a bright green color are produced from the base to the top of the stem, somewhat resembling a corn plant, though more graceful. Late in Summer the plant produces showy reddish brown plumes over a foot long, which turn a silvery gray at maturity.



Giant Reed or Arundo, one of the tallest grasses

The Giant Reed is useful for the centers of large beds, in the backgrounds of borders or as specimens in the lawn. It refuses to be at home in stiff, clayey soil, preferring a deep, sandy loam and a sheltered position. Variegated forms are obtainable; they have leaves striped with white. This latter sort seldom grows over 6 feet tall and is not entirely hardy without protection in the colder climates.

BAMBOOS

(bam-boo'. From the Indian name *bambos*.)

The Bamboos form a group of interesting grasses, interesting because of their association with many uses to which they are put by the Japanese. Few of our outdoor Bamboos, however, grow so that we can actually use them for fishpoles. They are usually more bushy. Three principal genera of grasses are known as Bamboos, namely:

Bambusa (bam-beu'-sa), *Arundinaria* (a-run-di-nair'-i-a) and *Phyllostachys* (fil-lo-stak'-is). Generally speaking, it is wise to protect all of the sorts listed as Bamboos.

The choicest and hardiest sorts include the following:

Arundinaria auricoma. This grass is an excellent purple stemmed variety, having green and yellow variegated foliage. It is rather dwarf, growing only 3 feet tall.

Arundinaria fortunei. This is the smallest of the common hardy Bamboos, growing only 18 inches tall and having evergreen foliage, variegated green and white. Although it lacks the grace of the taller varieties, it is often used for edging or in rockeries.

Arundinaria japonica (*B. metake*). Arrow Bamboo. This handsome variety from Japan forms dense masses 8 feet to 10 feet high. The leaves remain on the plant in good condition well into Midwinter. This sort is reliable and thrives under trying conditions.

Arundinaria simoni. This sort is distinct and of vigorous growth, the branches being grouped in dense clusters. The narrow, green leaves are occasionally striped with white. It grows 20 feet tall in China although 15 feet is considered to be a good growth in this country.

Bambusa palmata. This is an effective, broadleaved species forming dense clumps 4 feet high. The bright green leaves are often 15 inches long and 3 inches wide.

Phyllostachys aurea. Golden Bamboo. This graceful Chinese sort has close jointed canes which are light green when young, but change to a straw yellow when mature. The plants grow 15 feet tall and are covered with small branches which bear soft green foliage.

CULTURE. Most sorts are a little tender in the extreme North. They prefer abundant water and thrive well along streams.

CORTADERIA (*Gynerium*)—Pampasgrass

(kor-ta-der'-i-a. From the South American name. *Gynerium*, jy-nee'-ri-um, is derived from *gune*, the ovary, and *erion*, wool; the stigmas are covered with long, silky hairs.)

"What is there growing in the garden or wild more nobly distinct and beautiful than the great silvery plumes of this plant waving in the Autumnal gusts—the burial plumes as it were, of our Summer too early dead," writes Robinson in "Subtropical Gardening." Unfortunately, the plants of *Cortaderia argentea* are rather tender and require mulching in Winter, or they may be taken up and wintered in a cool cellar. The plumes are the handsomest, most graceful of all grasses and the needed care is worth the trouble.

FESTUCA—Blue Fescue

(fes-teu'-ka. An old Latin name for a grass.)

This little tufted grass, *Festuca glauca*, has silvery blue foliage and grows only 10 inches tall. The plants are evergreen, but it is advisable to cut the old leaves from the plants early in the Spring before the new crop is produced. It is especially recommended as one of the best plants for edging in the perennial border because it keeps its place without encroaching upon the turf edge.

ERIANTHUS—Ravenna (Plume) (Hardy Pampas) Grass

(er-i-an'-thus. From *erion*, wool, and *anthos*, flower. A tuft of woolly hairs is borne at the base of the flowers.)

In habit *Erianthus ravennae* resembles the Pampasgrass, but it is not as ornamental because the plumes are not as showy. It grows 5 feet to 10 feet tall. In a sunny location, in well drained soil, this grass is attractive as a specimen or for use among shrubs.

MISCANTHUS (Eulalia)—(Japanese Rush)

(mis-kanth'-us. From *mischos*, a fruit stalk, and *anthos*, a flower, referring to fact that the flowers are stalked.)

The plain green and variegated sorts of *Eulalia* are of great value in the garden. They grow 5 feet to 7 feet tall. *Miscanthus sinensis* (*Eulalia japonica*) has deep green leaves 2 feet to 3 feet long and over an inch wide. Maiden Grass, *M. sinensis gracillima* (*univittata*) has long, drooping leaves, narrower than the former sort and with a stripe of white through the center. *M. s. zebrina*, the Zebra grass, has leaves which are variegated, being marked crosswise with broad, yellowish white bands. In the Striped *Eulalia*, *M. s. variegata*, the variegations run lengthwise in the leaves.

PROPAGATION. Chop up large clumps with a hatchet and place divisions in sand to produce roots.

PENNISETUM—Fountain Grass

(pen-ni-see'-tum. From *penna*, a feather, and *setas*, a bristle; the hairs surrounding the flowers are feathery.)

Most of the Fountain Grasses are annuals, but *Pennisetum japonicum* is a perennial, grows 3 feet to 4 feet tall, and has foxtail-like plumes of rich mahogany tipped with white.

PHALARIS—Ribbon Grass (Gardeners Garter)

(fal'-a-ris. From *phalaros*, shining, referring to the shining seeds.)

This grass is a favorite of old gardens where it spreads widely. The leaves of *Phalaris arundinacea picta* are attractively striped with pure white. It is useful as a border for the taller perennial grasses because it grows 2 feet tall. It thrives especially well in wet soil and may be used on the margins of ponds. In soil too rich it loses its variegation.

GYPSOPHILA—Babysbreath (Chalkplant) (Gauze-flower) (Fairybreathe)

(jyp-sof'-i-la. Means *gypsum-loving*.)

The Gypsophila is one of the daintiest of the old fashioned flowers, with a misty grace which is not found in other flowers. The flowers themselves are tiny, white or bluish white and the plants are covered with myriads of these blossoms all during the Summer. The plant grows from 2 feet to 3 feet tall; the foliage is grasslike, the stems are branched minutely and are wiry, and the general appearance is filmy, gauzy or misty white. *Gypsophila paniculata* has single flowers, while *G. p. florepleno* has larger, double rosettelike flowers and is more satisfactory. Bristol Fairy and Ehrlei are two much improved sorts with purer white flowers several times as large and fully double, also earlier. *G. acutifolia* is frequently cultivated, differing from *G. paniculata* in its greener and narrower leaves. *G. cerastioides*, the Mouse-ear G., and *G. repens monstrosa*, the Creeping, are trailing species blooming in June and July; the former has downy leaves and white flowers with pink veins, whereas the latter has smooth leaves and white or rosy flowers.

USES. The Babysbreath is an excellent cut flower, especially when combined in bouquets or decorations with other flowers which do not have much foliage. The flowers, especially of the double form, can be cut and dried and used during the Winter months. The plants themselves are useful in the hardy border, or as pot plants. The trailing form is useful for edging and for rock gardens.

CULTURE. Gypsophilas endure open, dry places and rather poor soil. The name Gypsophila (Gypsum-loving) seems to indicate its preference for limestone soils. Some gardeners claim that cutting the plants back after blooming is detrimental to them. The new double sorts will need 4 feet of space as the plants become enormous.

PROPAGATION. They may be propagated from seeds or cuttings taken either in the Fall or Spring. The double sorts should be grafted on the roots of the single flowering ones, as about 40 per cent of the seedlings come double from seed. The plants are divided most frequently.

GRAFTING DOUBLE GYPSOPHILA

J. W. Mallinson in "The Florists Exchange and Horticultural Trade World" describes the method fully as follows:

"The best method of propagation is by grafting on the roots of the *Gypsophila paniculata* (the single flowering type). This can be done both in Winter in the greenhouse and in late Summer in a coldframe.

"For Winter grafting, stock plants should be potted up in the Fall and started in a moderate heat about the beginning of the year. In about four weeks the young shoots will be 3 or 4 inches long and ready to graft. The scions can be grafted on almost any size root, but pieces about 2 inches long and about the thickness of a lead pencil are probably best. In selecting roots for grafting the best plan is to cut off the top of the root about an inch below the crown and throw it away; this will insure your not having any shoots of the single variety springing up later on.

"Do not cut the root up, but put the graft in first, splitting the root on one side and almost (but not quite) through and down about 1 inch. Then cut the bark carefully from both sides of the young shoot and insert this trimmed scion in the slit in the root and tie it carefully with raffia. In cutting the shoot it is necessary to have a steady hand and a good knife with a razor edge. It is also important to so place it that there will be a bud or leaf joint either below the top of the root or about level with the top; otherwise, if the shoot is broken off at any time there is no chance of its making a growth from the base. It is also important to trim the shoots so that these buds are not cut off. After the shoot is tied in, cut off the root to fit the size pot you are going to use; the long 2¼ inch pot is a handy size.

"As the young growths from stock forced under glass are quite soft, it is necessary to do the work in a shady place and to keep the grafts covered and moist so they do not wilt. They should be potted up as soon as possible, put in the grafting case, watered and closed up. The best plan is to plunge the pots (in the case) in peat or sand. In potting, the top of root can be just about level with the soil or it can be left partly projecting until the graft is united; the pots will then have to be filled up with soil when they are removed from the case.

"These grafts unite very easily in February and March, but with a little extra attention to shade and temperature the work can be carried on up to the end of May if necessary. After the young plants are taken out of the case they need careful attention as to watering and shading until they are thoroughly rooted. Then they can be hardened off in a cool house or frame and planted out in the field about the end of May. By Fall they will have made sufficient growth to be salable plants.

"The double *Gypsophilas* can be grafted from shoots taken from plants growing outdoors. The operation is exactly the same as when performed in the greenhouse except that larger roots are used and the com-

pleted grafts are beeled in close together in a coldframe, which is kept closed and shaded until they are united. They are then gradually aired and hardened off until thoroughly rooted when they can be planted directly into the field.

“They can be grafted in this way during the entire Summer and Fall months and even into November. It is necessary if this is to be done to keep a certain number of plants cut back so they do not run up to bloom, and also that shoots suitable for grafting can be obtained. The later grafted plants are usually carried over Winter in a coldframe. They need very careful protection as they are heaved by the frost very easily. Mice will also eat the roots during Winter.”

HEATHER—Heath

The American finds it almost unholy to write of Heather because his remarks may be read by a Scotchman who might wonder by what right an American obtained permission to discuss these bonny plants. There are a number of sorts of Heathers which may be grown in Northern United States, but many of the European sorts are not hardy enough. Lovers of Heather might easily grow it, if they but knew the sorts to grow. The following sorts are seen thriving in our country:

Calluna vulgaris, the true Scotch Heather, has tiny purple flowers and grows 12 inches to 18 inches tall. It blooms late in August and remains in bloom until Fall. There is also a white variety. *C. crispa* is an excellent sort with pinkish lavender flowers.

Erica carnea, the Spring Heath, has pink flowers and is one of the most popular sorts in America. The plants grow 6 inches tall and bloom in April or May.

Erica stricta, the Corsican Heath, seldom attains a height of 2 feet and has stiff, upright branches. The flowers are rosy-purple, appearing in August.

Menziesia polifolia, the Irish Heath, has small, oval, dark green leaves and long spikes of large, drooping, white or bright rose bells. It blooms from July to September. The plants attain a height of 6 inches.

Bruckenthalia spiculifolia, the Spikeheath, is found listed in some catalogs. It grows 5 inches to 8 inches tall, has heathlike, light pink flowers produced in early June.

USES. Besides their sentiment and interest, the Heaths are extremely dainty for use in the border or rock garden. They are especially at home as an undergrowth for Rhododendron beds. They may be cut, and when placed in vases, will last for weeks.

CULTURE. The various Heaths prefer a soil compounded of peat or leafmold. This means that all these plants prefer an acid soil. They like plenty of moisture in Summer but the soil must be perfectly drained. The weather conditions over much of the United States are not ideal, due to our hot, dry Summers, but Mr. Wm. Anderson (Lancaster, Mass.), writing in *The Gardener's Chronicle of America*, says:

"A situation should be selected where protection is afforded from sweeping winds in February and March. We have some Heather planted on a hillside in the full sun, and exposed to sweeping northwest winds. The tops were killed back some last Winter, but started up again in early Spring and was in full bloom September 6. These plants have been growing in their present location for four years. For the first two years the ground was kept cultivated between the plants, but the growth became so thick that this was discontinued, and since then thousands of seedlings are beginning to appear under and between the older plants. In another spot a planting was put in two years later, and in a more sheltered location, and has come through the last two severe Winters in good condition."

PROPAGATION. The propagation of the Heathers is rather difficult for the amateur. It is best to purchase plants from the dealer.

HELENIUM—Sneezeweed (Helensflower) (Bride-of-the-sun)

(he-lee'-ni-um. Named for the beautiful Helen of Troy, cause of the Trojan War.)

The Heleniums are tall growing, mostly autumnal plants which are closely related to the Sunflower. The blooming period is from June to the end of September and during this time the plants are covered with flowers of mahogany crimson, coppery bronze, lemon yellow, and light and deep rich yellows. The flowers are flat and are borne in large heads or clusters. They grow from 1 foot to 6 feet high.

Helenium autumnale, Riverton Gem, grows from 2½ feet to 3 feet high and has flowers of an old gold color, which changes to a blood red Wallflower color when mature. Riverton Beauty grows from 5 feet to 6 feet tall. Its flowers are a rich lemon yellow with a purplish black cone center. Rubrum bears large, loose heads of terra cotta or mahogany crimson flowers which do not change as the blooms mature. Superbum has deep, golden yellow flowers whereas Striatum has yellow flowers striped with crimson. Crimson Beauty is the newest sort with almost crimson flowers and grows but 2 feet tall. All the above varieties bloom from August through September.

H. hoopesi, the Orange Sneezeweed, a clear, rich yellow sort with slightly drooping rays, blooms early in June and grows only 2 feet tall.

Following *H. hoopesi* in season of bloom is the Dwarf Sneezeweed, *H. autumnale* var. *pumilum*, another yellow sort, usually growing about 18 inches tall and bearing a profusion of flowers through the Summer.

USES. Heleniums are a very useful as well as popular group of plants for the garden, for their masses of golden hues blend with the autumnal colors and produce effects which are hard to achieve in any other group. Because of their tall growth, Heleniums are used to form the body and main background of large borders and are very attractive when planted among shrubbery. The flowers are very useful for cutting and the blooms remain fresh for a long time when placed in water. The bushes are always covered with large quantities of bloom which remain on the plant in good condition for some time. The cut flowers are useful for interior decoration. They make splendid companions for Silver King Artemisia, Mistflower, Buddleia, and the various Rudbeckias.

CULTURE. Heleniums are vigorous growing plants which thrive in any soil, but for some reason they often die out. They have no ability to become weedy as do the Sunflowers but produce clumps.



Helensflower or Helenium. The rich maroon varieties are superb for late Summer or Fall garden effects

PROPAGATION. These plants, except for the varieties of *H. autumnale*, are propagated by seeds sown in July.

Cuttings may be taken in Spring.

"The Canadian Horticulturist" describes the strange behavior of the clumps. They report that

"The root of the *Helanium* is annual in character, so that a clump in Spring is really just a collection of new shoots with roots of their own. The roots of last year's flower stalks have died and are pretty well disintegrated, so the new shoots can readily be separated with the fingers, and transplanted into beds or rows to flower the same season, leaving in the Fall at the base of each flower stalk another collection, which, entire will be your clump."

HELIANTHEMUM—Sunrose

(hee-li-an'-the-mum. From *helios*, the sun, and *anthemon*, flower.)

A rather neglected stepchild is the *Helianthemum* which in the strict sense of the word, is not a herbaceous perennial but a shrub. Being thus between what are readily recognized as shrubs and herbaceous perennials, it has not received the attention it deserves. An attractive creeping plant with bright little flowers, many species are found in European catalogs and some four or five in our own. *Helianthemum chamaecistus* (*vulgare*) (*nummularium*) is the commoner sort which has yielded a number of varieties, ranging from chocolate, bright red, clear yellow to white and pink. The flowers open in the morning and close about noon, are about an inch across and have a huge mass of yellow stamens at the centers. They bloom from July to September.

USES. They are admirably adapted to rock gardens and are well planted upon steep banks. For the front line of a perennial border they make a mat of foliage and furnish a goodly quantity of bloom, although it cannot be said that they are profuse flowering as usually seen in the Eastern or Central states. Mons. Henri Correvon, after his visit to the United States, was enthusiastic in advising Sunroses for use upon our usually bare terraces.

CULTURE. They tolerate hot sun; in fact, they thrive better in such conditions than when their roots are kept too wet. Limestone soil suits them. A protection using straw or evergreen branches is wise for Winter. The only drawback to their culture is that they are difficult to transplant. Also they need Winter protection north of Philadelphia. They should be pruned back each Spring to make the plants less straggling.

PROPAGATION. They may be most easily rooted from cuttings taken in Spring or Summer. Division is possible.

HELIANTHUS—Perennial Sunflower

(hee-li-an'-thus. From *helios*, sun, and *anthos*, flower.)

This bold perennial is so diverse in its habits that it is hoped the reader will not come to it with prejudice because some of its relatives are coarse and grasping in nature. Some of the sorts are actually dainty. All the sorts are tones of golden yellow and they are usually tall growers. Of the many sorts we shall mention a few of the best.

SPECIES. Swamp Sunflower (Autumnglory), *Helianthus angustifolius*, is a native of swamps from New York to Florida and Texas, but not being especially appreciated in America, it was sent to Europe where it proved popular. It was sent from Europe to an American nursery and, no doubt, labeled in pencil. The American nurseryman read the end of the name only and cataloged it as *H. questifolius*. This is one of small flowered species growing 7 feet tall. The disk of the flower is purple. The leaves are less than $\frac{1}{3}$ inch wide.



Maximilian Sunflower, one of the choicest late flowers of Fall

The Thinleaf Sunflower, *H. decapetalus* (*multiflorus*) grows 5 feet tall. The leaves are hairy beneath. The commonly cultivated sort, Soleil d'Or, has double flowers and is a splendid cut flower. They need room to spread.

The Maximilian S., *H. maximiliani*, is perhaps the tallest one, growing 8 feet and sometimes more if the conditions are favorable. It is the last one to bloom, flowering as it does in October. Its long stalks are full of small golden yellow flowers.

The Ashy S., *H. mollis*, has grayish, velvety, heartshaped leaves. The stems are dark. The flowers are pale yellow

with dark centers. The plants grow 5 feet tall. A refined sort, it is commonly included in large perennial borders.

The Graceful S., *H. orgyalis*, has rough, narrow leaves which droop to clothe the stems. The flowers are quite small, 2 inches across. This sort often attains a height of 10 feet. It makes a column of green growth and someone has said that "previous to flowering it spends its time trying to look like a Bamboo." Another suggests a telegraph pole for a stake. It is a native of Colorado to Nebraska and Texas. It does not have a tendency to dominate the garden.

The Prairie (Stiff) S., *H. scaberrimus (rigidus)* blooms in September. The flowers are 3 inches across, with dark purple or brown centers. Wolley Dod is a variety with clear yellow flowers. It spreads rapidly.

Jerusalem-artichoke, *H. tuberosus*, is the plant grown for its edible tuberous roots. It grows wild in rich spots from Nova Scotia to Georgia and Arkansas. Not grown for ornament, as it spreads too rapidly. It is also called Girasole, which corrupted becomes "Jerusalem." The tubers are said to have a flavor which resembles that of the Globe-artichoke.

USES. These are splendid to plant in the back rows of the border, in clumps on the lawn among shrubbery, or to naturalize in the wild flower gardens or along woodland paths. They combine attractively with hardy Asters. The flowers are cut and used for all kinds of decorative purposes.

CULTURE. Because they grow so tall, they should be planted in places where the soil is not only rich, for they are great feeders, but also very deep. The soil should be manured well every season, because the roots exhaust the soil of food materials very readily. They prefer open, sunny places to partially shady ones, although they like a moist soil. The plants require almost yearly transplantings.

PROPAGATION. Helianthus is readily propagated from cuttings or division of the root stocks.

HELIOPSIS—(Orange-sunflower)

(hee-li-op'-sis. From *helios*, sun, and *opsis*, like.)

The Heliopsis is not grown to a great extent because so many more attractive flowers are to be found among the varieties of Helianthus. This Orange-sunflower is very similar, growing from 2 feet to 3 feet high, with flowers varying in colors from orange to a deep golden yellow.

The flowers are either single, like a Daisy, or double like a Zinnia, and measure $2\frac{1}{2}$ inches or 3 inches across. *Heliopsis helianthoides* var. *pitcheriana* which grows 2 feet to 3 feet is a good variety to grow. It has single flowers of a very thick texture and of a deep golden yellow color. It begins blooming in June and lasts through September and early October. The leaves are quite smooth. *Excelsa* is a semi-double, intense golden sort which does not turn brown in the center. *Zinniaeflora* is a double variety.

The Rough *Heliopsis* (*H. scabra*) has rough, sandpapery leaves.

USES. The Orange-sunflowers have long stiff stems which make them valuable for cutting. The blooms last a long time, both on the plant or in water. The plants themselves are suited for borders or dry spots.

CULTURE. They are of easy culture, preferring open, sunny situations.

PROPAGATION. They are propagated by seeds, cuttings and an annual division of the root stocks.

HELLEBORUS—Christmas-rose

(hel-leb'-or-us or hel-le-bor'-us. From *helein*, to kill, and *bora*, food; referring to its poisonous quality.)

The commonest species is *Helleborus niger*, a species with ever-green, blue green, thick leaves. The flowers are white, tinged pink or



The flowers of the Christmas-rose open when no other flowers are gracing our gardens

purple. The flowers are $2\frac{1}{2}$ to 3 inches across and open in Midwinter, the season being influenced by soil and exposure. It has black roots which give the name *niger*.

USE. The Christmas-rose is well adapted to a rock garden or perennial border.

CULTURE. The Helleborus should be planted in beds with other perennials so that they get the sun in Winter but are densely shaded in Summer by taller sorts. They are impatient of being moved; it requires three years after transplanting to get them to bloom. Mulch the plants with decayed leaves during the Summer and keep a light covering over the plants in Winter to prevent injury by severest weather. Some gardeners place a small frame over the plants.

PROPAGATION. By root division. Seeds of most of them are freely ripened. If sown as soon as gathered, and kept in a coldframe, they germinate well; but the seedlings take two or three years to make flowering plants.

HEMEROCALLIS—Daylily

(hee-mur-o-kal'-lis. From *hemero*, a day, and *kallos*, beauty.)

During the early Summer months the roadsides, railroad tracks and banks of streams are brightened immensely when the Tawny Day-lilies come into bloom. They grow so freely and in so many out of the way places that many people have come to consider them as wild plants, but they are natives in Japan and China and have been cultivated for 350 years in European gardens.

The Tawny Daylily (*Hemerocallis fulva*) has a gaudy orange yellow color. The plants grow from 3 feet to 5 feet high, have narrow, drooping, grasslike leaves which are very graceful, and the trumpet shaped flowers are produced on spikes of from six to twelve blooms. Each flower lasts only a very short time, but new ones bloom every day. The blooming period extends from early June through July for all the varieties.

H. aurantiaca, the Orange D., is more beautiful in form than *H. fulva*, because of the clearer color. Kwanso is a double variety.

The Lemon Daylily (*H. flava*) has clear lemon or canary yellow colored flowers and is the better one of the two to grow in the gardens. It is only 2 feet or 3 feet high and is delightfully fragrant. The Japanese D. (*H. thunbergi*) may be described as a later blooming Lemon D.; it is an acquisition.

H. middendorffi is a dwarf sort with rich, golden yellow flowers.

H. dumortieri begins blooming in May and has very showy flowers of a bronze yellow on the outside and a rich yellow inside of the petals.



Lemon Daylily, with charming fragrance and grace

There are many new hybrids of the Daylilies, many of which are superior in color and produce more blooms to the spike.

H. florhami has deep, golden yellow blooms with Indian yellow markings. The petals are beautifully frilled.

H. citrina has pale lemon yellow flowers and is a tall grower.

RECENT HYBRIDS.* Dr. A. B. Stout of the New York Botanical Garden has been interested in Daylilies for a number of years and, after having made numerous crosses, has selected a few varieties worthy of names because of their superiority. Some of his outstanding sorts are:

Mikado. Each of the three inner petals is marked with a zone of

*These notes are derived from an article by Dr. Stout in *House and Garden*, Jan. 1929.

purplish red contrasting with the rich orange of the rest of the flower. The flowers are 5 inches across; foliage 20 inches high; flower stems 10 inches higher.

Vesta. Semi-dwarf. Flower stems 8 inches above the foliage. Flowers $4\frac{1}{2}$ inches across, deep orange with little brownish red in the center.

Wau-bun. The light cadmium yellow flowers are overcast with a sprinkling of fulvous red. The flowers have broad spreading not curving, overlapping petals and also showy broad sepals. Height 3 feet.

Besides these Dr. Stout is working upon a promising group of pink and red varieties. One sort is peach red with a throat of primuline yellow; the other is coral red with an arching zone of garnet red. These are being bred with the older sorts and many seedlings have resulted which will be shortly on the market.

C. Betscher of Dover, Ohio, and Franklin B. Mead of Fort Wayne, Indiana, are also working upon the *Hemerocallis*.

USES. Since they grow and bloom so freely, their uses are many. About the most attractive way of growing them is to let them naturalize themselves along woodland paths, along streams or moist banks. They are excellent for the border or to plant among shrubbery. The flowers are used for cutting purposes.

CULTURE. The Daylilies are easy to grow, thriving equally well in full sunlight as in partial shade. In fact they can be planted anywhere and they will take care of themselves. It is best to divide the clumps every two years, although they are often left for four or five years. They do not need any protection during the Winter.

PROPAGATION. They are easily propagated by division of the root stock.

HERBS

The home gardener can derive a genuine pleasure in growing herbs when they supply so many of one's wants. This is especially true of a housewife who has her own kitchen garden.

CULINARY HERBS

Borage (*Borago officinalis*). The large leaves have a fragrant odor and add greatly when served with Lettuce in salads. The leaves are sometimes boiled like Spinach. The flowers are used in cool drinks and they also attract the bees.

Burnet (*Sanguisorba canadensis*). The leaves are used in cool drinks and in flavoring soups and salads.

Chives (*Allium shoenoprasum*). The fine leaves are used for flavoring cottage cheese. They are ornamental edging plants with their lavender clusters of flowers.

Dill (*Anethum graveolens*). The seeds have a pungent odor. Used for flavoring vinegar to make "dill pickles."

Fennel, Florence (*Foeniculum dulce*). The leaf-stalks at the base of the stem are very large. These are fine in salads, the sweet flavor somewhat resembling that of Celery.

Fennel, Sweet (*Foeniculum vulgare*). The leaves are beautiful for garnishes; are also boiled in fish sauces.

Lavender (*Lavandula vera*). The leaves and flowers have a delightful perfume and a small bag of the dried flowers gives the linen a delicate perfume. Oils are also made from the true lavender.

Marjoram, Sweet (*Origanum majorana*). The leaves and shoots are used for seasoning and are also dried for Winter use.

Mint (*Mentha piperita*). The leaves and stems are used for flavoring and for the distillation of essence of peppermint. They soon take possession of the garden.

Sage, Common (*Salvia officinalis*). The leaves and tops are used commonly in the seasoning of the stuffing for fowls and for dressings.

Tarragon, True (*Artemisia dracunculus*). The leaves, either fresh or dried, are used for flavoring soups, pickles and vinegar. The finely chopped fresh leaves add greatly to salads.

Thyme (*Thymus vulgaris*). The leaves are used either fresh or dried for flavorings. This is also a good edging plant for the garden.

MEDICINAL HERBS

Boneset (*Eupatorium perfoliatum*). Tea made from the Boneset leaves is used for fever.

Catnip (*Nepeta cataria*). It is a well established fact that cats delight in rolling among the leaves. The Catnip is said to be a good bee pasture.

Feverfew (*Chrysanthemum parthenium*). This makes a good blood tonic.

Horehound (*Marrubium vulgare*). The leaves are used as a remedy for colds, dyspepsia, and also for their tonic effect.

Hyssop (*Hyssopus officinalis*). The leaves and tops are used for Hyssop tea. This plant is also grown as a pot plant.

Rosemary (*Rosmarinus officinalis*). Rosemary tea gives relief to headaches.

Tansy (*Tanacetum vulgare*). Tansy tea is used against worms and is generally used in bitters.

Wormwood (*Artemisia absinthium*). The leaves are white, silky. The flowers are yellowish, in leafy panicles. This is beneficial to poultry and should therefore be planted in every poultry yard.

CULTURE. All the herbs require a rather rich garden soil. If they are being grown for their seeds, the branches should be cut when the seed is ripe before it has a chance to fall away and scatter. After being dried properly the seed should be stored. The stems and leaves, if they are to be dried, should be cut on a bright day when the leaves have matured; then tied in small bundles, dried quickly in the shade, and hung in paper bags in the attic until they are needed. They can also be kept in mason jars or tight fitting boxes. The roots should be washed thoroughly before drying. All the herbs except Lavender, Rosemary, Thyme, Sage and Wormwood, which are of a shrubby nature, should be cut back to a few inches from the ground and covered with straw or leaves during the Winter. These few plants should be cut to within 6 inches of the ground. All herbs need Winter protection.

PROPAGATION. Most herbs are easily raised from seed. Tarragon is propagated by division of the roots. The seed should be sown where the plants are to remain, and then the small plants can be thinned out later. It is best to plant them on a dull day and water them carefully.

HESPERIS—Dames Rocket (Damask-violet) (Sweet Rocket)

(hes'-pur-is. From *hesperos*, the evening star.)

Sweet Rocket is one of our most fragrant flowers which grows almost wild, as it has escaped from the gardens. *Hesperis matronalis* has white, flesh or magenta-colored flowers which grow in large clusters. The plants are about 3 feet high and are bushy. All of the flowers are very sweet-scented and this is noticed especially in the evening. They bloom from June through September.

USES. They are used in the border where they bloom earlier than Phlox, which they somewhat resemble. The flowers are used for cutting. The magenta colored sorts are trying to combine with other flowers, so that the white variety is the one to grow.

CULTURE. They thrive in either sun or partial shade in any good garden soil. Closely related to the Cabbage, they are sometimes affected with the Cabbage worm, in which case they should be sprayed with arsenate of lead.

PROPAGATION. They are grown from seeds and readily self-sow. They should be treated as biennials.

HEUCHERA—Coralbells, Alumroot (Fairyflowers) (American Sanicle) (Rock-geranium)

(heu'-ker-a. Named for Prof. Heucher, German botanist.)

Heucheras are among the most desirable of the smaller growing plants. There are many varieties worth growing. Of these, *Heuchera sanguinea* is most often seen. The plants are compact, bushy and grow in tufts, the flower stems growing $1\frac{1}{2}$ feet or 2 feet high. The ever-green leaves look like those of a Geranium. From a mass of ornamental foliage rise graceful spikes covered with pendant flowers which assume the size of Lily-of-the-valley bells, of a bright coral-crimson color. It blooms about the middle of Summer. Of the varieties, Pride of Nancy and Rosamunde are good pinks; Pluie de Feu and Grenade are good reds; Edge-Hall is a buff pink; Virginale is a pure white. Pinkbells, *H. brizoides*, which Bailey says is *H. lithoph'ea*, has pink bells and is taller. The Alumroot *H. americana*, resembling in foliage the Foam-flowers and the Mitreworts, is a native of our woods; it has red-green leaves in Winter.

USES. Small clumps of Heucheras are very attractive when planted by themselves among the shrubbery where their dainty bells



Coralbells or Heuchera, slender spikes of bright bells for the border or rockery



The giant flowers of the Rosemallow or Hibiscus, largest flowers of the garden

will not be outshone by other gay flowers. The foliage is tinted with various maroon markings during the Winter and this makes the plants valuable for the borders. The leaves are also used in vases as accompaniments to other flowers, and the sprays of bloom make excellent cut flowers. Heucheras are perhaps most at home when planted in the rockery, where they become robust and the foliage completely covers the rocks.

CULTURE. Moist, rich loam is the best soil in which to grow them. Although the plants grow for a long time in one place, the larger plants tend to grow weak very soon. These should be removed and planted elsewhere about every four years. Spring is the best time to transplant. They refuse to thrive in a stiff, clayey soil. They need protection which if given, assures that they will live through the Winter.

PROPAGATION. The plants are propagated by seeds which should be sown in March if a greenhouse is available. The seedlings are tiny and need not be transplanted until they attain some size. The seed does not germinate well.

The best method is by division. Take up the clumps in early Autumn and break them into scores of pieces, with as much root attached as possible. Place these in a frame where they can be watered and protected for the Winter.

J. W. Mallinson, in the *Florists Exchange*, tells of the method of propagation by leaf cuttings:

“Heucheras can also be propagated from leaf cuttings just as the Lorraine varieties of Begonias are grown. Good healthy leaves should be chosen and cut off down to the base of the leaf stalk with a sliver of the main stem attached. These leaves, if put in sand in a cool house in November, will by the middle of February, be well rooted and will have formed a bud at the base of the leaf stalk. They should be left in the sand until the young leaves are developed, when they may be potted up and grown under glass until the weather permits planting them in the field.”

HIBISCUS—Rosemallow (Mallow Marvels)

(hy-bis'-kus. Virgil's name for the Marshmallow.)

The perennial Mallows bear some of the largest flowers of any of our perennials and present a gorgeous sight when in bloom. They grow from 3 feet to 8 feet tall and the branches spread out over a great area. The leaves are large and grayish green in color. The flowers resemble a single Hollyhock bloom, only they are much larger, some measuring from 6 inches to 10 inches or 12 inches across. The colors range from white with crimson centers to deep crimson, but most of the

colors are soft, causing them to blend with other flowering plants. The plants begin blooming in July, but are at their best during August and September. Altogether these large Mallows present quite a tropical aspect to any planting. The Common Rosemallow (*Hibiscus moscheutos*) grows 4 feet or 5 feet high, and has flowers 6 inches across of a clear rose color with a large dark eye in the center. This is a very showy plant. The Crimson-eye Rosemallow (*H. oculiroseus*) has large, pure white flowers with a deep crimson eye. The flowers are extremely large and appear velvety. The Mallow Marvels comprise a group of especially large flowering sorts. The Marshmallow is *Althaea officinalis* and very different, though confused with the Rosemallows which are truly marsh plants.

USES. Mallows are hardy and adapt themselves readily to almost any planting. When grouped in masses the large plants present an extraordinary picture. They may be planted either among shrubs or used as a substitute for them. The plants are too large for the ordinary garden border because they require much room, but they can be used in large beds of mixed flowers. They should be planted at least 2 feet apart.

CULTURE. Mallows prefer a moist soil although they will do equally well in dry soil, sun or partial shade. The plants die down to the ground during Winter and are about the last plants to show green shoots in the Spring; for this reason many persons dig them, thinking they have died. They grow very rapidly and do not require much care. A light mulching of the plants is good for Winter.

PROPAGATION. They are propagated from seed which will produce blooms the first year if the seeds are sown early enough. The roots are easily divided and one can always be sure that the plants will come true to form if this method is used.

HOSTA (Funkia) (Niobe)—Plantainlily (Corfulily) (Augustlily)

(haws'-ta. Named for N. T. Host, German botanist. Funkia being named for H. Funk, another botanist also German.)

Two sorts of flowers have been called Daylilies—Funkia or Hosta, and Hemerocallis. Both are old favorites in the garden. The flowers of the latter group are orange and yellow (see Hemerocallis, page 172). Most of the Hostas are grown in shady gardens for their excellent foliage which is produced in clumps. The one most commonly grown in our gardens is the Big Plantainlily, *H. plantaginea grandiflora* (sub-



A detail of *Hosta sieboldiana* with its gray leaves

cordata). Its leaves are a glossy light green in color with spikes of pure white Lilylike flowers. It grows about 2 feet high and spreads in a circle about 3 feet across. The flowers are very fragrant, appearing during August and September. The Blue Plantainlily, *H. caerulea* (*ovata*) grows 1½ feet high, blooms during July, and has mauve or blue drooping flowers which unlike other sorts are suddenly enlarged in their upper half.

H. lancifolia (*japonica*) (*lanceolata*). The plants grow 24 inches tall. The leaves are narrow, 4 inches long and 2 inches wide, tapering to both ends. The flowers are pale lilac, 2 inches long, in late Summer and Autumn. Var. *albo marginata* has leaves margined white.

H. sieboldiana (*glauc*a) is one of the strongest growers in this group. It is 2½ feet tall, has white flowers tinged with lilac produced

in July and has very large, grayish green leaves. *H. fortunei* is a species growing 2 feet tall, with the flowers produced far above the foliage. The leaves are heart-shaped at the base, blue green. The flowers are pale lilac, produced in late Summer. There are some of these Plantain-lilies with variegated foliage, bright green margined in white, of which the Wavyleaf P., *H. undulata*, is one of the best. They improve every year as the clumps increase in size.

USE. Plantainlilies are perhaps most useful in the various kinds of borders. The dwarfer variegated kinds are used for edging purposes. They can be used as specimen plants in the lawn, planted near lakes or streams, or grouped around shrubbery. Both the foliage and flowers are distinct, beautiful and attractive wherever planted. Some of them are used in rock gardens. They are excellent plants for the strip of soil near the house in the shade which is common about most of our homes.

CULTURE. Before planting the ground should be prepared to a good depth and enriched with manure. They grow best in moderately rich soil where a good supply of moisture is available. They will grow either in sunlight or shade, but they grow best in partial shade, even in the Northern exposures, where very few other plants will grow. Unfortunately, they are often nipped by early frosts but recuperate after a time.

PROPAGATION. The division of the root clumps is the easiest method of propagating them. Some produce seeds which grow readily if planted soon after the seeds ripen.

HYPERICUM—St. Johnswort, Goldflower (Aaronsbeard)

(hy-pehr'-i-kum. The Yperikon of Dioscorides, said to be from *Yper*, on account of, and *ereike*, heath; from its growing in similar places.)

Literally speaking, these flowers either seem to be made of gold or to be holding the golden rays of sunlight within their small petaled cups. Real, genuine pleasure is derived by growing this plant. The Goldflower (*Hypericum moserianum*) has large, deep, glistening, golden yellow blossoms, greatly resembling a single Rose, filled with numerous yellow stamens and red anthers. These flowers are borne very freely at the ends of long, graceful, reddish branches which are covered with oval, shining, smooth, deep green leaves. This plant grows from 1½ feet to 2 feet tall and the slender, spreading branches droop at the ends. The flowers are in bloom from August through October.

Aaronsbeard (*H. calycinum*). Lower growing, with golden yellow flowers.



St. Johnswort, the large yellow flowers of which filled with threads of gold, are sure to be enjoyed

USES. The *Hypericums* are especially good to use as borders for shrubs or the perennial beds of flowers, or to use in rock gardens. The plants are neat growing for pot culture. The flowers are employed in decorations.

CULTURE. The plants do best in a light, warm, sandy soil. The flowers last longer if they are shaded slightly. All of the *Hypericums* are shrubby in nature, the woody growth and some of the leaves remaining on during the Winter months. New growth starts from the base of the plant.

PROPAGATION. They are propagated from seeds, cuttings or division of the roots.

IBERIS—Candytuft

(y-ber'-is. From Iberia, the ancient name for Spain.)

Candytuft, a low growing evergreen shrub, is in reality one of the best flowers in its class. It grows from 9 inches to 12 inches high and spreads out making low mats which are covered with flat, dense clusters of the purest of white flowers. This Evergreen Candytuft (*Iberis sempervirens*) comes into bloom the end of April and lasts through June. *I. gibraltarrica* is the largest of the Candytufts, but is somewhat more straggly in growth. It is very showy because the clusters of white flowers are deeply tinted rose-lavender. This is the larger and showier of the two species, but is not as hardy. The Tenore C., *Iberis tenoreana*, is the first species to bloom. The leaves are slightly hairy. The flowers are whitish or rosy. The foliage of Candytuft is evergreen, which makes the plant attractive throughout the year.

USES. Candytuft, besides being one of the best white flowers for cutting, is also invaluable to use in rock gardens, to cover bare spots and to use in beds. Candytuft, with its evergreen foliage, is one of the best plants grown for edging purposes. Some of the varieties are fragrant, which make them more useful as cut flowers. The plants are used in hanging baskets, porch boxes and are grown as pot plants.

CULTURE. The plants form a dense mat and when once established should not be removed. They do best in the sunshine. A moderately rich soil and plenty of water are the most important requirements. If the true *I. gibraltarica* is grown, it will need well drained, sunny rockery or careful protection in the Northern states.

PROPAGATION. Those plants grown from seed are usually straggly the first year. They are easy to raise from seed, which germinates in two weeks, but the best plants are obtained from cuttings which root easily. Cuttings should be made in September and wintered over in a coldframe where they can be kept moist.

IRIS—(Flag)

(*I'-ris*. From *iris*, the rainbow.)

It is a peculiarity of an Iris lover that he does not like to have an Iris called a Flag, although most persons call these flowers by that name. With the advent of new varieties the Iris is gaining in popularity from year to year. A national society honors this flower and many cities have Iris clubs. The exquisite colors and the unrivaled form have attracted many flower lovers. A collection of the varieties is a veritable rainbow of soft colors. The Iris enthusiast will not be interested in so brief a discussion as this but is referred to J. Marion Shull's "Rainbow Fragments," John C. Wister's "The Iris," W. R. Dykes' "Handbook of Garden Iris" and Ella Porter McKinney's "Iris in the Little Garden."

BEARDED, or GERMAN IRIS. The most cultivated group of *frises* are the bearded sorts, all of which have thick, fleshy, underground stems rendering their increase most easily accomplished. They are remarkably well adapted to different situations. They do well in hot dry, sunny places as well as the cooler and damper spots. In the shade, they are not at their best. They require frequent transplanting, as the clumps soon become too thick.



Photo supplied by Carl Salbach, Berkeley, Cal.

The William Mohr Iris is one of the loveliest of the modern sorts

JAPANESE IRIS. Gorgeously colored and giant in size the Japanese Iris *I. kaempferi* (*laevigata*) will become more popular in the future, for now the Japanese names have been translated and the flower buyer may be sure of the sorts he buys from the nurseryman. Unlike most Bearded Irises, the Japanese Iris is a flat bloom, the leaves are narrower and the rhizomes are smaller and more compact. They delight in water when in bloom but not at other times during the year.

SIBERIAN IRIS. For the margins of pools, where the soil is a trifle too damp for other flowers, the Siberian Iris, *I. sibirica* thrives. It will not succeed with its roots in water, however. The flowers are rich purple, light lavender, blue or white, and like the Japanese Iris, these flowers are without the prominent beard found in the Bearded Iris.

WATER IRIS. There are two common sorts of Iris which may be planted directly in the water; namely, the European Yellowflag, *I. pseudacorus*, and the Blueflag, *I. versicolor*. The European Wild Flag has large, yellow flowers, the petals of which are drooping. The flowers appear among the luxuriant leaves. The Blueflag is a familiar flower to most Americans, for what boy or girl has not gotten wet feet gathering it? Both of these sorts will thrive in ordinary garden soil without a great quantity of water.

DWARF IRIS. In April, during favorable early Springs, we are delighted with the various dwarf Irises. Growing about 6 inches tall they supplement the Spring bulbs. Especially charming are the purple dwarf sorts when planted in front of Emperor Narcissus. *I. chamaeiris* is the dwarf bearded species: *I. verna* and *I. cristata* are beardless sorts.



The Japanese Iris has large showy flowers which seem especially lovely when seen by the waterside

The latter sort is very tiny and has very slender creeping rhizomes. Being sensitive to too much moisture, it grows very well when planted upon little mounds of soil or in perfectly drained spots, such as in a rockery.

INTERMEDIATE IRIS. Hybridists have crossed the tall Bearded Iris with the dwarf Bearded sorts to produce a group intermediate in season and height between the two parents.

USES. The uses of Iris have been suggested in the foregoing paragraphs. It is an excellent border subject and for home use the flowers are attractively arranged in our rooms. There are wet soils sorts, tall varieties, very early kinds and all types of bloom to attract each and every one.



The brilliant orange scarlet Torchlilies, *Kniphofias*, are slightly tender and need protection from Northern Winters

CULTURE. The simple, let-them-alone, culture of the Iris is gratifying to the home owner who is not a careful gardener. They do not like water upon their crowns in Winter, except where noted. The Bearded sorts are said to like lime; the Japanese Iris does not prefer a limestone soil.

PROPAGATION. Merely cut up the old clumps to propagate them. Each piece will grow, even if allowed to lie about the garden for a week without planting. The Bearded sorts increase rapidly and should be divided every three years.

KNIPHOFIA (Tritoma)—Torchlily (Redhotpoker) (Clublily)

(ni-foh'-fi-a. Named for Johann Hieronymus Kniphof, German professor of medicine.)

Brilliant flamelike spikes of Kniphofia are showy in the garden and they never become too common, because in northern gardens they are a trifle tender to the cold. The most usual sort seen is *Kniphofia uvaria* (*aloides*) (*pfitzeri*), a species 3 feet tall and with brilliant orange scarlet spikes of tubular flowers. *K. rufa* is lower growing and with yellow flowers, the upper tinged red. It is interesting, even though it does not assume the proportions of the commoner one.

USES. Splendid in front of shrubs but not to be combined with the delicate tinted perennials. With masses of foliage as a background, their beauty is properly displayed.

CULTURE. The principal point of culture is to remember their tenderness in Northern climates. Dig them in late Fall and plant in a coldframe or protected place. They prefer quantities of water and a sandy soil.

PROPAGATION. Best by dividing plants in Spring. Seedlings of most sorts are slow to bloom. Some seedsmen list a strain that blooms first year from seed.

LAVENDULA—Lavender

(lah-van'-deu-la. From *lavo*, to wash, referring to lavender-water.)

Sweet Lavender is one of the well-beloved fragrant plants of the old-fashioned garden. It was a favorite because of its delicate odor. Lavender, *Lavendula officinalis* (*vera*) grows from 1½ feet to 3 feet high, has downy, silvery gray foliage and long spikes of blue-lavender

flowers. It blooms from July through September and produces flowers very freely. There are two dwarf varieties: *L. nana compacta* with large blue flowers, and the Munstead Lavender with dark blue flowers, both of which grow 12 inches high and bloom several weeks earlier than the type. *L. spica*, the common Lavender, is dwarfed and has light colored flowers.

USES. Many persons make small sachet bags of the dried leaves and flowers to put among linens. Because of the gray foliage, Lavender is used to great advantage in borders. It is also grown for low hedges, or on dry banks and in the rock garden. The flowers are good for cutting.

CULTURE. Lavender requires a sunny situation and light soils. Heavy protection during the Winter months is also needed.

PROPAGATION. Young plants are easily started from seeds sown early in the Spring. They should not be sown too deeply, and after the plants appear they should be kept shaded and moist until real strong.

LEONTOPODIUM—Edelweiss

(lee-on-to-poh'-di-um. From *leon*, a lion, and *pous*, a foot; supposed resemblance of the flower head.)

Everyone knows of the fame of the small Edelweiss of the Alps and every tourist who travels through Switzerland learns the mysterious story of how they grow under overhanging cliffs which means the risk of life when one wishes to get them. But ideal plants can be grown in our own gardens just as easily as any other plant. They are one of the hardiest of plants and withstand severe Winters. The plant is low, growing from 4 inches to 12 inches high, and is densely covered with a whitish wool. The leaves are silvery-gray and lie almost flat on the ground. From the center grows a flower stem which has three or four starlike flowers. The true flowers themselves are small and inconspicuous, but they are surrounded by this starlike cluster of woolly leaves. This Edelweiss is called *Leontopodium* (*Gnaphalium*) *alpinum*, a sort 6 inches tall, bearing three or four flowers. *L. sibiricum* has flowers twice the size of the Alpine Edelweiss but without the sentimental associations.

USES. This is an ideal plant for the rockery.

CULTURE. If these plants are placed where they will be exposed fully to the sun, they will be a greenish gray, but they will be a creamy white if planted in partial shade. Any good sandy garden soil will do

in which some limestone has been mixed. If the plant is placed between two rather closely fitting rocks with plenty of sandy soil beneath, it will succeed nearly as well as it does in the Alps.

PROPAGATION. They are propagated by seeds sown indoors in early Spring to be placed in the open border about the first of May; or by division of the roots in the Fall.

LIMONIUM (Statice)—Sea-lavender

(ly-moh'-ni-um. From *leimon*, a grassy plain.)

This is a splendid group of annual, perennial and shrubby everlasting flowers which are usually known as Statice, which name should be given to the plants frequently called Armeria, or Thrift.

The Bigleaf Sea-lavender, *Limonium latifolium*, is the most commonly cultivated sort. The leaves are oblong-elliptical, hairy and usually produced in clusters at the base of the plant. The graceful, wiry stems of tiny white, lavender, or purple flowers are produced in profusion.

The Tatarian S., *L. tataricum*, has red flowers. The branches of the flower cluster are winged.

USES. The daintiness of the flower stems, as well as the tiny flowers, are an asset to the flower border and rock garden. For cutting they are unexcelled, inasmuch as they are everlasting, with flowers so small that they are needed for fillers.

CULTURE. Rather resenting clay, the Sea-lavenders will grow in almost any other soil.

PROPAGATION. The seed is really the dried flowers. Some of these dried strawlike flowers were male flowers and therefore contain no seed. They sometimes self-sow. Because the sprout of the seed comes from within the dried flower, it is well to sow the seeds on their sides, not upside down, otherwise the tiny rootlets cannot extricate themselves from the mass of petalage and damp-off.

They may be propagated from root cuttings, given similar treatment as for *Ceratostigma* (see page 116).

LIATRIS—Gayfeather (Blazing-star) (Button-snakeroot) (Devilsbit) (Colic-root) (Rattlesnake-master)

(ly-ay'-tris. Derivation unknown.)

Liatris is a rather odd plant and merits a much more general use because it is very desirable and attractive. The Cattail Gayfeather



Gayfeather or *Liatris*, an unusual flower of Summer

(*Liatris pycnostachya*) is the one most commonly grown and is one of the choicest sorts. It grows in long spikes, 4 feet to 5 feet tall, which are densely covered with slender, grasslike leaves of a light green. The small flowers are a light rosy purple, a color which does not harmonize readily with all other colors. A peculiar habit of the *Liatris* is that the succession of bloom is from the top downward, rather than from the lowest blooms up to the highest as in all other spike flowers. They bloom in August and September. The Button-snake-root (*L. spicata*) and *L. scariosa*, are two other fine species, both producing deep violet-purple spikes of flowers but not growing so tall as the first sort and with fewer but larger flowers. There are also lighter

shades of purple and white varieties. There is hardly any perennial which will attract as much attention as does the *Liatris* because it is so brilliant in color and unusual.

USES. *Liatris* is a splendid border plant to use at the back of the border, but the color is one which goes with few other flowers and it should be subdued with white flowers. The plants have great attraction for butterflies and bees.

CULTURE. *Liatris*es will thrive in places where scarcely anything else will grow. They will grow in any soil or shade, but prefer a moist soil and partial shade.

PROPAGATION. They are propagated from seed sown in the Autumn, or by division of the tuberous roots.

LINARIA—Toadflax, Kenilworth-ivy

(lyn-air'-i-a. From *linon*, flax; referring to the fact that leaves are like those of flax.)

Few persons are unfamiliar with the Toadflax or Butter-and-eggs which grows along railroad tracks and waste places. This is so common that one seldom thinks of cultivating it. There is, however, a species with wide, gray leaves and tall branching stems of Snapdragon-like yellow flowers known as the Macedonian Toadflax, *Linaria macedonica*. It grows 3 feet tall and forms a clump of quite upright stems.

The Kenilworth-ivy (Mother-of-thousands), *Linaria cymbalaria* (*Cymbalaria muralis*), is a little creeping vine with purple, pink, or white flowers and roundish leaves with three to seven lobes.

The Alpine Toadflax, *L. alpina*, is a dainty species with purple flowers which have an orange lip. It only grows 6 inches tall and has small, narrow gray leaves and flower stems which sprawl on the soil.

The Liverleaf T., *L. hepaticaefolia*, is a rapid spreading creeper with dark green leaves similar to *Hepatica* and light blue flowers.

CULTURE. Few greenhouses are without the Kenilworth-ivy, as it seeds freely in every crevice under the benches. In a sheltered spot of the garden it is frequently encountered in the North, especially in wall gardens and on stone steps.

The Macedonian Toadflax is a good border subject at the beginning of June. It is sometimes seen as one of the taller plants of the rocky, whereas the Alpine Toadflax is one of the daintiest gems

All species flourish in the full sun and in stony soils.

PROPAGATION. The *Linarias* spread by underground stems and to such an extent that the plants may be divided.

The seeds grow readily and even self-sow.

LINUM—Perennial Flax, Golden Flax

(ly'-num. From *linon*, flax.)

Flax is a lovely, airy plant with flowers of yellow, blue and white. The general height is from 12 inches to 18 inches. The foliage and flowers are very delicate and graceful and present the appearance of a small, feathery bush. Golden Flax (*Linum flavum*) has broad, flat leaves and transparent, deep, golden yellow flowers. *Linum perenne* is the tallest one of the Flax plants and has rather small flowers of a pearly blue. *L. p. album* is the white-flowered variety. The flowers are borne in great numbers all during the blooming season, which lasts from May through September. They have the capricious habit of blooming every other day. The *L. narbonnense* has azure flowers with a white eye, larger than *L. perenne*.



Blue Flax or Linum, airy, dancing blue flowers



Blue Lobelia, one of the charming blue natives

USES. Flax, especially the yellow-flowered one, is very attractive to combine in plantings of Delphiniums, for both are in bloom at the same time. Flax is a dainty flower for any border because the plants bloom through such a long season. Some of the smaller plants are grown in pots and in the rock garden. The evergreen leaves and profusion of bloom offer further reasons for growing the Blue Flax. For the rockery, *L. flavum* is a good subject, preferring a well-drained location to be at its best.

CULTURE. Flax is very easy of culture, growing readily in any good garden soil in full sunlight. It dislikes root disturbance.

PROPAGATION. It is propagated by seeds and division of the plants.

LOBELIA

(loh-bee'-li-a. Named after M. L'Obel, botanist and physician to James I.)

To the wild flower hunter no native red flower is as choice nor as brilliant as the Cardinalflower, *Lobelia cardinalis*. A dweller in wet places, swamps and streamsides, its range extends through the Eastern States, south of Florida and west to Texas and even into the mountains of California. It grows 3 to 4 feet tall. The lipped flowers open in August and produce seeds freely. There are numerous hybrids cataloged in Europe which bear green or bronze leaves and soft pink, bright purple and bright rose flowers besides the usual cardinal color. Most of these hybrids have *L. fulgens* blood in them.

The Great or Large Blue Lobelia, *L. siphilitica*, is a lovely native blue sort. It varies greatly in height; some plants are only a foot tall, others attain 3 feet. This sort also inhabits moist places and flowers in August.

The Indian-tobacco, *L. inflata*, is not worthy of cultivation but is often seen. The flowers are pale blue. When the flowers are picked they exude a milky juice, one drop of which is almost nauseating to the taste. It is reputed as an Indian remedy.

USES. They are at home in damp spots of the gardens, and along the waterside. The Great Lobelia prefers wetter places than the Cardinalflower. When grown in dry places, they suffer from drought; they often thrive in the ordinary garden soil, but are not as tall as in the wild places adapted to their culture. The Great Lobelia thrives in partial shade or sun, but the Cardinalflower is usually found in partial shade. *Horticulture* says that they frequently disappear, perhaps due

to having too much material used to give Winter protection. It is, however, suggested that when transplanting the plants, they be set deeply enough so that the lower leaves are covered.

PROPAGATION. They grow readily from seed which is usually sown in the Fall and kept wet until they germinate, in which case the plants are wintered in a coldframe.

A. H. Lake, eminent wild garden enthusiast, remarks that "*Lobelia cardinalis* is one of the most easy of wild flowers to naturalize by sowing the seed at the right time on soils favorable to their germination and success. Many city parks have either running streams or lagoons, on the margins of which this flower can be grown in profusion, by sowing the seeds upon the wet soil upon the approach of warm weather late in Spring. Although this flower grows native on the margin of cold northern streams, its seeds germinate only under warmth of atmosphere."

LUNARIA—Honesty

(leu-nair'-i-a. From *luna*, the moon; suggested by the round, silvery septum of the seed vessel.)

Four hundred years the Honesty, *Lunaria annua* (*biennis*) has been in cultivation by gardeners who admire its magenta flowers, but principally its silvery seed pods, which are circular, like thin sheets of silvery parchment or cellophane. When the pods ripen, the two outer coverings are removed to reveal the seeds and the parchment disk within. It has had a great number of common names, among which are: Honest-pocketbook, Money, Money-in-both-pockets, Moon-penny, and Moon-dollar. Those persons who despise magenta say that the flowers are horrible.

USES. The seed pods are used for bouquets alone or combined with other everlastings.

CULTURE. It prefers limestone soil and is subject to club root and black rot in acid conditions. During wet seasons the seed pods may develop a mold which destroys the beauty of the disks. Commercial growers often bleach the disks with sulphur fumes. They like partial shade, and the most satisfactory place for them is the wild garden.

PROPAGATION. Seed should be sown where the plants are to grow inasmuch as they transplant with difficulty unless in seedling stages. The seeds self-sow readily. As the plants of *L. annua* are biennial, the seed is best sown in May, in which case they flower the next year.

LUPINUS—Lupine

(leu-py'-nus. From *lupus*, a wolf; supposedly devastates land as does the wolf, although this is not true of common species.)

If one is looking for a plant a little out of the ordinary, surely the stately Lupines will fill this need, for they are among the most beautiful perennials grown. The Washington Lupine (*Lupinus polyphyllus*) is the most popular species. It grows from 2 feet to 5 feet in height and has beautiful, long spikes of pea-shaped or butterflylike flowers covering at least 12 inches, on stems 3 feet or more high. A good three-year-old plant should produce from 30 to 50 stems of bloom. The flowers are clear azure-blue, white or pink, with soft green leaves divided into small, fingerlike leaflets, eight to sixteen in number. The flowering spikes are produced very freely, and a border or mass of these plants, when once seen in bloom, presents such a showy yet beautiful picture that it is not easily forgotten. V. E. Brubaker, who is very successful with Lupines in Wisconsin, advises the following strains of seed: Downer's strain, Harkness hybrids, Moerheimi, Tunic, Regel, Rosy Morn, and Golden Spire. The plants tend to spread out while growing. Healthy plants are fairly covered with the spikes which bloom throughout May and June.



A lovely group of Lupines growing in a New Jersey garden

The Texas Bluebonnet, *L. texensis*, is the state flower of Texas, an annual which does not seem to take to cultivation in the North.

In building up Golden Gate Park in San Francisco, *Lupinus arboreus* and *L. albifrons* were used to hold the shifting sand. These are species native to California and glorify the sand dunes of the whole Pacific Coast.

USES. The best effect is gained by planting Lupines in masses in the border or on the banks of ponds or streams where the tall growing spikes cast a stately reflection in the water. Lupines naturalize well in woodlands and partially shaded corners. The tall spikes are handsome for cutting.

CULTURE. In some places Lupines, when once established, are very easy of culture, but in other localities, where the atmosphere is not moist enough, they test the skill of the gardener. There has been great discussion about the needs or harm from lime, but this is not a limiting factor. In Europe around railroad stations and in America along railroad tracks, Lupines grow splendidly, which suggests that possibly they would succeed if mulched with soot and cinders. It is more probably due to its desire for perfect drainage. The roots are large and long and readily exhaust the soil of its food materials, so each year the ground should be enriched with plenty of stable manure. It is best to grow them in moist situations, but if this is not possible they should be watered well during dry weather. Lupines dislike to be moved, so they should be planted and left alone. If the flowering stalks are cut down, the plants may bloom the second time in September.

PROPAGATION. Lupines are easily raised from seed and the plants self-sow if the soil is not too dry. The seeds should not be covered deeply when planted and can be sown at any time. The plants can be divided or cuttings can be made by using the rather hardened wood, or side shoots. This should be done in the Spring.

LYCHNIS—Campion. Includes Ragged-robin, Maltese Cross, Rose-of-heaven, Rose C. (Cuckooflower), (Mulleinpink), (Jerusalem Cross), (Scarlet Lightning),
(German Catchfly)

(lik'-nis. From *luchnos*, a lamp; refers to the brilliancy of the flowers.)

For the different parts of one's garden there are many good varieties of Lychnis. Two of these are known as *Agrostemma*.

Ragged-robin and Cuckoo-flower are common names of *Lychnis flosculi*. This plant, with narrow, grasslike, grayish foliage, grows from 12 inches to 18 inches high, forming a tuft, and producing many small, delicate, tassel-like flowers in short sprays of single and double rose or soft pink, which are very attractive to the bees of the neighborhood. Ragged-robin is in bloom continuously from May through August.

The Rose Campion, Mullein-pink, Dusty-miller, *L.* or *A. coronaria*, is a very striking plant. The stems and leaves are a downy, silvery gray and the Pinklike flowers are a cerise crimson. It grows 2 feet or 2½ feet tall and is in bloom during July and August.

The Maltese Cross, Jerusalem Cross or Scarlet Lightning, *L. chalcedonica*, is a tall, loose growing plant with hairy stems and leaves. The foliage is similar to that of Sweet-william, and in June from each plant several straight, strong flower stems rise to a height of 3 feet or 5 feet with immense heads of vermillion scarlet flowers. This is one of the most brilliant of the old-fashioned flowers, having been in cultivation at least 300 years. There are white flowered forms of this species.

The Clammy Campion (German Catchfly), *L. viscaria*, grows only about 12 inches high, has dense growing, evergreen foliage and fragrant, magenta flowers. There is a sticky, viscid area below the flowers. The double form is of such brilliance that it hurts the eyes.

L. haageana has single, orange scarlet flowers, shaped like those of Maltese Cross and grows a foot tall. Most of these varieties have double forms which are really as interesting as the single ones.

The Arctic Campion, *Lychnis alpina*, is a species for the rockery. It grows 6 inches tall and produces a tuft of leaves from which arises a stem crowned with bright pink flowers in April.



Maltese Cross, *Lychnis chalcedonica*

USES. All of these varieties are used for cut flowers, in perennial borders and rock gardens. They make a fine bedding plant because the period of bloom is extended over the Summer months.

CULTURE. *Lychnis* is very easy of culture. The plants like sandy, well manured loam in full sunlight. Those varieties suitable for the rockeries grow well in dry soils. These are one of the best groups of plants for withstanding droughts.

PROPAGATION. The best method is by division of the plants in Spring, although all the varieties are easily grown from seed which blooms the second year after being sown.

LYSIMACHIA—Loosestrife, Moneywort

(lis-a-mak'-i-a. From *lusis*, concluding, and *mache*, strife; supposed soothing qualities when ancients placed it under the yokes of oxen.)

The various sorts of *Lysimachia* are quite distinct, each sort bears little resemblance to the others.

Moneywort (Creeping Jenny and Creeping Charlie) are all common names for *Lysimachia nummularia*, which is a prostrate or creeping plant and grows very rapidly. It has very showy yellow flowers and blooms from May to September. The leaves are opposite and oval.

The Clethra Loosestrife (Gooseneck), *L. clethroides*, is a very showy and graceful Japanese variety. It grows 3 feet high and produces long, recurved or drooping spikes of pure white flowers from July to September. It resembles a *Veronica*. The leaves take on bright autumnal colors in the Fall when the flowers are gone.

The Spotted L., *L. punctata* (*verticillata*) is another yellow flowered sort which is attractive. The flowers are produced in whorls around a leafy stalk.

USES. The Clethra Loosestrife is useful for cutting for it lasts well when cut. They are useful to grow in a border, wild garden or along lake margins. There is hardly a plant which surpasses the Moneywort for covering banks, for rustic urns, vases, old stumps, or to grow in hanging baskets. The plants spread very rapidly and are very showy when in bloom. They serve as good carpeting plants for shady places under trees, but it must be admitted that they spread rapidly and become a weed. Avoid using it in the garden. I once heard of its use for a garden path where it spread during the owner's absence until it invaded a rock garden necessitating the rebuilding of the rock garden.

CULTURE. All of the varieties prefer moist situations and it is because of this that they grow so splendidly on stream banks or in any kind of waterside plantings. The plants do not require any care.

PROPAGATION. Division of the roots either in late Autumn or early Spring, is the best method of multiplication.

LYTHRUM—Purple Loosestrife (Blackblood)

(lith'-rum. From *luthron*, black blood, the purple color of the flowers.)

The common Purple Loosestrife, *Lythrum salicaria*, grows from 4 feet to 6 feet tall and blooms during the months of July and August. The foliage is willowlike and the tall, erect, graceful spikes produce brightly colored, reddish purple flowers. The Rose Loosestrife, *L. roseum superbum*, has rose colored flowers while Perry's Variety has large and glistening cherry red flowers.

Lythrum virgatum resembles *L. salicaria* but has leaves which are narrow at the base and with smaller flowers in an open, leafy raceme. Variety Rose Queen has bright rose flowers in long racemes.

USES. The Loosestrife takes care of itself when planted at watersides, margins of lakes or streams. There is hardly any plant which can equal this when it is naturalized in bogs, swampy woodlands or in wild gardens.

CULTURE. These plants are moisture loving and should be planted in partial shade in low lands or in swamps.

PROPAGATION. By stem cuttings, by seeds and division of the roots.



Purple Loosestrife or Lythrum, unexcelled for waterside planting

MAZUS

(may'-zus. The Greek for *teat*; referring to the ridges of the corolla.)

An interesting creeping plant for the rockery, *Mazus japonicus* (*rugosus*), comes from Japan. The leaves are coarsely toothed. The flowers are bright blue with orange brown raised spots on the lower lip. The flowers are somewhat like a *Lobelia* superficially, although they are more closely related to *Pentstemon*.

USES. Comparatively unknown, this rock subject soon makes a good mat of flowers and seems to be hardy at least at Columbus, Ohio, where it flourishes.

PROPAGATION. Seeds self sow freely. Division of plants is an easy method.

MECONOPSIS—Welshpoppy, Satinpoppy

(mek-on-op'-sis. From Greek *Mekon*, poppy, and *opsis*, like; like a poppy.)

The writer shall not forget the first really blue Poppy which he saw. It was in the Edinburgh Botanic Garden in 1922 and coming upon it there he felt as though he had made a discovery. Since that year they are being grown in the United States. The Satinpoppy, *Meconopsis wallichii*, grows 5 to 6 feet tall in Great Britain and 3 feet tall at the Harvard Botanic Garden. The flowers are satiny, pale blue fading to lavender, with the petals ruffled at the edges. The stamens are bright orange and form a tuft in the center. The clusters of cut leaves are covered with rusty hairs. It is a native of the Himalayas of India and grows at a height of 9,000 to 10,000 feet.

Meconopsis baileyi (*betonicifolia*) also has blue flowers, hairy stems, buds, and leaves. It was discovered in the Tibet Alps by Major Bailey, and was not much known until F. Kingdon Ward sent seeds to England in 1924. The plants are 3 feet tall. This is a perennial.

The Welshpoppy, *M. cambrica*, is erect, about 18 inches tall, producing large tufts of thick roots. The leaves are gray beneath. The flowers are pale yellow, 2 to 3 inches in diameter, nodding. This does not seem to be so difficult to grow.

The Harebell-poppy, *M. quintuplinervia*, was one of Farrer's favorites. The flowers are lavender blue and are like exquisite bells as

they nod from their graceful 18 inch stems. The flowers are 3 inches in diameter, rather satiny and pearl gray inside with silvery stamens.

M. pratti is also blue, an annual which grows 3 feet tall. The leaves are almost entire.

CULTURE. Edith Banghardt of Medina, Washington, advises shade and acid soil. She plants them among Rhododendrons in a deep, rich loam. In the "National Horticultural Magazine" she writes:

"In my nursery field, where they are planted out like cabbages in a row, I have had to make the soil, as my soil is naturally light and sandy, splendid for many alpine, but for those loving partial shade and an acid peaty combination, I have had to add quantities of leafmold, peat, very old cow manure and plenty of grit, and I cover them with slats during the heat of the season. Some of my plants did not look very thrifty for a short time last year, and around these I used ammonium sulphate. They picked up immediately, which satisfied me that they do require an acid soil condition.

"They have to be watered every day, after the heat of the day is over, as they really prefer a humid atmosphere, but they should not be watered so late that the leaves will not dry before nightfall, or the leaves will spot and turn brown. Quite as likely as not, along about the middle of August they will begin to die down, although those in pots in my coldframes passed through a very severe Winter in leaf, but they are a deciduous type, and should they die down do not be alarmed; you will find the life kernel alive, to return again in the very early Spring. Being like other Oriental Poppy types, late August or early Fall is their dormant season and the best time to move them.

"I have successfully bloomed the Harebell-Poppy *Meconopsis quintuplinervia*, and *Meconopsis pratti* I grow in the moraine along with the little Chinese *Delphinium tatsienense*, alpine Poppies, alpine Linums, and the little Chinese *Geranium pylzowianum*, a very lovely little bulbous type with blue-rose coloring. *M. pratti* likes a lighter soil, and sunnier conditions, and seeds itself all over the place in my garden. It, too, is very lovely, but while *M. baileyi* nearly always adheres to its lovely azure blue coloring, *M. pratti* sometimes comes a deeper blue, almost verging on the purple, but I have never had it come the wishy-washy whitish blue that some enthusiasts complain about."

A. B. Bruce, in "Gardening Illustrated" (England) believes that such sorts as *M. baileyi* want moisture not only in the air, but also at the roots. He has therefore devised a method of burying porous tiles 6 inches below ground, with an elbow, so that the plants can be subirrigated. The joints and the end of the tile are sealed with cement so that there is only moisture by diffusion, not by leakage.

PROPAGATION. Most sorts are biennial and have the usual Poppy taproot, which makes them difficult to transplant. Sow the seeds in pots and continue to transfer to larger pots until they can be placed in the garden. The best mixture of soil is leafmold, sand and

loam. The seedlings will not stand much sun, dryness or heat. Robert Dunn, in "Horticulture," writes that the seedlings must not be allowed to get any sun. Mrs. Banghardt's success is worthy of note; she writes:

"Like most high alpine, especially the Gentians and Androsaces, they must be pricked off in the cotyledon stage, before the second pair of leaves appear, into flats of rich leafmold, loam, and gritty sand. I allow them to grow on in flats until they are about 2 inches high, which will not be long, as they grow quickly when they have the right soil requirements, and they should be planted out in their permanent quarters, if for private gardens, about the middle of June."

W. N. Craig, in "Horticulture," says of *M. baileyi*:

"I consider the blue Himalayan Poppy one of the easiest of plants to raise from seeds, always provided that the seeds are reasonably fresh. From seeds sown in December germination took place in 18 days in a greenhouse with an average minimum temperature of 50 degrees; from a later sowing, seedlings appeared in 14 days. I have not found any more difficulty in pricking off seedlings than with such Poppies as *P. nudicaule* and *P. orientale*. I sent a packet of seeds to a friend in New York State and he reported that seedlings showed within 10 days. There is no need to subject the seeds to freezing, as is thought necessary with some alpine. The great trouble in the past has been that seeds offered were too ancient to germinate at all.

"*Meconopsis baileyi* as seen on some Scottish and north of England estates last Summer was wonderfully fine. The plants stood 5 to 6 feet high and were still flowering in early August, although much seed was at that time ripe on the plants. Seedlings were coming up literally in thousands all around the parent plants. I doubt very much if we will ever be able to produce such plants as are to be found in Great Britain, as there is too much heat in Summer, and unless the plants are mulched and given some shade, it is utterly hopeless even to expect them to live."

MERTENSIA—Virginia Bluebells (Virginia Cowslip) (Smooth Lungwort), (Kentucky Bluebells)

(mer-ten'sl-a. Named for Prof. F. C. Martens, a German botanist.)

The Virginia Bluebell is one of the loveliest of the early Spring blooming plants. In rambling through the fields and woods for Violets, large clumps of these flowers can be seen growing at random. *Mertensia virginica* is the showiest of all and the one which is most easily grown. The plants grow from 1 foot to 2 feet high, with soft, light green stems and foliage. The flowers are reddish-purple when in bud, but as the flowers open they change to a lovely gentian-blue. They hang in drooping, nodding, graceful clusters and the individual flowers are



Every garden lover admires clumps of *Mertensias* for the shady garden

funnel-shaped. It comes into bloom early; in fact, most of the growth is made before leaves come out on the trees.

The Mountain Bluebells, *M. ciliata*, has pale grayish leaves, oval to lanceolate. The sprays of pale blue flowers upon plants 2 feet tall serve to make this good for the garden or cut flower. This species is a native of the Rockies and can be identified by its bristly-edged leaves. It does not die to the soil after flowering.

The Prairie Bluebells, *M. lanceolata*, also has gray leaves, lanceolate or oblong. The flowers are "delicate blue mingled with the rose-tinted buds," says D. Andrews, "and appear first in a compact cluster which expands with a successive development of new flowers into a large, drooping panicle a foot or more in height. It grows in open, rather dry fields" from Saskatchewan to Colorado.

The Siberian Bluebells, *M. sibirica*, grows 5 feet tall, with broad leaves and light blue flowers. The foliage does not die down after flowering.

USES. The Virginia Bluebell serves its best purpose when allowed to naturalize itself in shady places. It combines well in borders, or in shaded corners where it can grow as if in its own wild habitat. After flowering and seeding, in late June, the foliage dies to the ground.

CULTURE. Mertensias need moist soil, preferably a rich, deep, loamy soil. Although most of the growth is made in sunlight, for it grows so early in the Spring, yet the plants should be naturalized in shady places and should not be disturbed when once planted. Mertensias are nearly always found growing in damp woods. They may be transplanted when dormant, usually in midsummer.

PROPAGATION. New plants are grown through division of the old ones.

MONARDA—Beebalm, Wildbergamot (Horsemint) (Oswego-tea)

(mon-ar'-da. Named for N. Monardez, a physician from Seville.)

The lovely cardinal or scarlet-red flowers of the Beebalm have for years been one of the standbys in the old-fashioned hardy garden. The "Cambridge Scarlet" variety of *Monarda didyma* is the best one to grow, attaining a height of from 2 feet to 3 feet and blooming all Summer. The whole plant is aromatic, the leaves especially having a

"minty" odor. The stems are square-angled, the leaves a dark green and the flowers a vivid scarlet. The Wildbergamot (*M. fistulosa*) has a lavender flower which is more compact, somewhat resembling that of the common Clover blossoms.



Beebalm or Monarda, which might be called the Hummingbirdflower, as the sweet cardinal flowers are loved by every humming bird

USES. The Monardas are some of the most striking plants for borders or for massing against a background of shrubs. The flowers are used for cutting and often the leaves have been used in the place of tea. Many persons grow Monarda just because of its "minty" foliage. It is also quite an attraction to humming birds and bees.

CULTURE. The Beebalm forms a thick sod or mat and

the plants simply refuse to be crowded out by other plants or weeds. The clumps should be divided in the Spring. Although they will grow in almost any soil or any situation, the plants are especially fine when grown near water or in moist places. The plants are easily established and are of simplest culture. If the plants are cut back after flowering a second crop of bloom may be expected.

PROPAGATION. Monardas are easily divided and new plants start readily. This should be done in the Spring; when done in the Fall the plants usually die. Plants can also be raised from seed.

MYOSOTIS—Forget-me-not, (Scorpiongrass)

(my-oh-soh'-tis. From *mus*, a mouse, and *otis*, an ear; refers to furry leaves.)

The very name Forget-me-not conveys a meaning filled with tender sentiments—sentiments which have endeared the flowers to us. The flowers are dainty and beautiful and although blue, white and pink forms can be grown, it is the dainty true blue ones which are most loved. The flowers are borne in small clusters and are very attractive against the dark green foliage of their plants.

“The Forget-me-not likes to play hookey from the flower garden, and to steal down to the brookside and meadow and live within earshot of the gurgling stream.” So writes the *National Geographic Magazine*. “With all that man has done for it, he has never bred out of it the spirit of independence that has been lost by most of the other flowers of the garden, for whenever opportunity affords, the Forget-me-not yields to the call of the wild.

“Have you ever noticed the little golden circle around the center of the flower? That little circle is put there by the flower as a honey guide, to tell the bee just where to insert her tongue to get the richest draught of nectar, and at the same time to touch both anther and stigma and thus fertilize the plant. And if you will watch the bees, you will discover that they are as careful to follow the signboard pointing to the well of nectar as a motoring tourist is to follow the signboard to the best hotel when night overtakes him.”

SPECIES. There are two different groups of *Myosotis*; one is perennial with plants which last for a number of years; the other is biennial, and the seeds must be sown every second year.

Myosotis scorpioides (palustris) which is the true Marsh Forget-me-not. This is the one found growing along stream and river banks or on the sides of ditches with creeping stems. It begins blooming about May and continues until Fall.

M. sylvatica, a biennial, grows 2 feet tall, has blue flowers with tiny yellow centers and is known as the Woodland Forget-me-not.

M. alpestris, the Mountain Forget-me-not, is dwarf, growing from 2 to 10 inches high. The *alpestris* varieties are very widely grown, some of the common ones being Ruth Fisher, which has clusters of flowers, each 1½ inches across of an azure blue color, and dark, glossy green leaves. These plants do not spread out so much but the bushes are more compact in their growth. They are not reliably hardy, except when kept in coldframes for the Winter. Victoria grows about 6 inches high and has clear blue flowers. All of the *Alpestris* varieties have small yellow centers in the blue flowers and begin blooming in April.

M. dissitiflora, the Swiss F., is a biennial and also comes into bloom in April. It grows about 12 inches high and its large, exquisite blue flowers are borne in graceful sprays.

USES. The Forget-me-nots are cheerful plants and are often combined with other flowers and bulbs which come into bloom early in Spring, such as the Daisies, Pansies, Arabis or the Golden Alyssum and the Spring bulbs—Hyacinths, Tulips and Narcissi.

Myosotis grows and spreads rapidly, carpeting the ground wherever it is planted. The Woodland Forget-me-nots are very valuable for naturalizing along woodland walks or in wild gardens. The Marsh Forget-me-nots (*M. scorpioides*) are best naturalized in moist places along the banks of streams or beside ponds. The varieties of *M. alpestris* and *M. dissitiflora* are used in the perennial borders, are combined with bulbs in the rock gardens, and are used as pot plants during the Winter. The flowers are also cut.

CULTURE. Forget-me-nots are grown similarly to Pansies, requiring damp, cool, shady places. They will grow in almost any soil and should be protected slightly during the Winter.

PROPAGATION. Forget-me-nots are easily raised from seed which should be sown in the Summer to insure good growth by the following Spring. These plants self-sow very readily. The plants can be divided or cuttings can be made.

NEPETA

(nep'-e-ta. Named for Nepet, a town of Tuscany.)

Those who have started to read this paragraph have done so because they are unfamiliar with the fact that *Nepeta cataria* is the Cat-

nip, or else they are reading without prejudice. There is a splendid sort of *Nepeta* for our gardens known as *N. mussini*, the Caucasian Catnip. It has spikes of deep violet blue flowers produced in profusion at Rose time from plants which spread out over a diameter of 3 feet. The foliage is small, wrinkled and gray green. The plants are quite prostrate. Two forms are found, one with larger leaves, *N. grandiflora* (*ukranica*); the smaller leaved sort being preferable. Mrs. Wilder writes, "If you are charmed with it, you have the true form; if you hate it, you have the false."

Very common and naturalized over the country is the Ground-ivy (Gill-over-the-ground), *N. hederacea* (*glechoma*). This is the familiar ground cover with round leaves, heartshaped at the base and light blue flowers. It is, of course, a garden pest but in shaded places it is a welcome ground cover where other plants refuse to thrive.

USES. The Caucasian Catnip is splendid for rockeries and ideal for rock walls. In the perennial border it serves as a substitute for Lavender in Northern gardens. As a cut flower it is dainty.

CULTURE. This plant seems tolerant of neglect and is usually successful in sun or partial shade as well as adapting itself to a wide range of soil conditions.

PROPAGATION. Naturally some branches layer. Cuttings may be made in Spring or late Summer.

OENOTHERA—Evening-primrose, Sundrops

(ee'noth-er-ah or ee-no-thee'-ra. From *oinos*, wine, and *thera* imbibing; the roots of *O. biennis* are reputed an incentive to drinking wine.)

The Evening-primroses are among the truly beautiful plants which anyone can grow in his garden. The plants grow from 1 foot to 2 feet high, spreading out and producing many satiny, Poppylike, four-petaled flowers of white, light rose and varying shades of yellow.

SPECIES. *Oenothera fruticosa* and its variety, *youngi*, have rich, golden yellow flowers with a red calyx produced freely from June through September. It is one of the most commonly seen Evening-primroses, growing 2 feet tall.

O. perennis (*pumila*), the Dwarf E., is generally dwarf but may become 2 feet tall. It is used in rockeries. Its variety Pilgrim is bushy, the calyx of the flowers being pale yellow.

O. caespitosa, the Tufted E., is a stemless plant, with leaves reminding one of a Dandelion and white flowers which turn pink or lavender.



Missouri Evening-primrose or *Oenothera*, one of the largest flowers of the garden. There are other charming sorts of Evening-primroses

O. speciosa is the commoner white sort, of "lazy looking habit;" the unopened buds are drooping. The flowers, as they mature, gradually turn pink. The leaves are divided. It is interesting to watch the buds of these flowers open before our eyes at about the evening dinner hour.

O. missouriensis (macrocarpa) Ozark Sundrop. This startling species produces golden flowers, 5 inches across, upon low, trailing plants. The flowers are followed by large, winged seed pods, so large for the size of the plant that they seem unnatural. The foliage becomes reddish in the Autumn. This sort is sometimes cataloged as *O. macrocarpa*.

O. biennis and *O. lamarckiana* are biennials which have become weeds in most gardens and for this reason they are not greatly admired, although they are praised in European catalogs for their height and wealth of yellow blooms.

These plants open their flowers toward evening and close them in the morning, hence their common name. Most of them, however, are open through the day as well as during the evening. If you have never watched these flowers open up you have missed a great thrill. The sepals separate and then the petals stir, unfold, and, as if by magic, shake out their wrinkles in a very short time.

USES. Evening-primroses are handsome plants for the rockery, for the border and for bedding designs. The flowers are fragrant and therefore are useful as cut flowers. They are beautiful when massed in front of shrubbery or planted in the wild garden, for the clusters of flowers are very fragrant and the bees are always around them.

CULTURE. Oenotheras sometimes become "weeds" because the plants spread fast. They grow well in any ordinary situation, in well drained, moderately rich soil. They need moisture and the soil should be prepared as deeply as it is possible, to get good moisture. The clumps need not be transplanted often.

PROPAGATION. Many of the species increase by producing small tufted plants at the base of the old ones. When the plants are divided it should be done in early Spring, in March or April. They are easily grown from seeds.

PAPAYER—Oriental Poppy, Iceland Poppy

(pa-pay'-ver. From *papa*, pap, or thick milk; refers to the thick juices.)

There are Poppies and Poppies, old-fashioned ones and new varieties, and it would almost seem that they grow more dazzling and more gorgeous each year. Perhaps they are grown in a greater number of gardens and we see their brilliant colors everywhere during the early Summer months, or perhaps, we too have learned the secret of growing these delicate silken flowers which constantly command attention. What more startling effect could be gained than by having a mass of giant Oriental Poppies (*Papaver orientale*) stand out boldly against a dense background of dark evergreens? The colors of the named varieties range all the way from silvery white, through blush and rose pink to salmon and scarlet crimson, each flower swaying and nodding on long, graceful stems. The Oriental Poppy blooms during May and June, grows from 2½ feet to 4 feet high and the whole plant, from the heavy magnificent foliage to the large flower cups and seed pods, makes a majestic subject. The flowers often measure 9 or 10 inches across. Some of them have a black blotch in the center of the petals and all have a great number of purplish black stamens in the heart of the cup.

VARIETIES

APRICOT QUEEN. A soft apricot.

BEAUTY OF LEVERMERE. A blood red with black spots.

LULA A. NEELEY. A deep oxblood red with dark spots.

MAHOGANY (also spelled Mahony). Deep mahogany.

MASTERPIECE. Creamy, overlaid with pink, deepening to red.

MRS. PERRY. A shrimp pink.

PERRY'S WHITE. White with black cross inside.

VICTORIA LOUISE. Smaller and more profuse Mrs. Perry.

QUEEN ALEXANDRA. A rose salmon.

The Iceland Poppies (*Papaver nudicaule*) are dwarfer plants, growing about 12 inches high. They are also favorites in the garden for the satiny petals of white, lemon, yellow and orange are beautifully crinkled and have a delicious fragrance. They bloom all through the Summer if the flowers are kept well picked, and either single or double flowered plants can be grown. Baker's Sunbeam is a superior strain with many lovely colors.

USES. Poppies make lovely cut flowers, but unless care is exercised in cutting them, the petals will droop and they will last no time. The flowers should be cut early in the morning when the buds are tight,



Iceland Poppies, dainty edging plants with lovely colors



Oriental Poppies should be transplanted in August

allowing them to open up in the water. They will last several days. The giant Oriental Poppies may be cut either early in the morning, or at evening, just as the buds are about to open. They will last longer if the outer green calyx is removed.

Poppies are used to a great extent in decorative work where daring color effects are needed.

Both the Oriental and Iceland Poppies are splendid subjects for the perennial border, but should never be planted with other plants unless the colors are carefully chosen. Both are beautiful if planted in large masses by themselves. A good combination may be made with Garden-heliotrope or Valeriana.

CULTURE. Oriental Poppies will grow in any open, sunshiny position in a good, deep loamy soil. They are of easiest culture and require very little care. During the dry spells in the early season, they should be watered occasionally, but after they have finished blooming and the leaves begin to die down, they should be let alone for the roots

seem to enjoy a thorough baking during the hottest months. When the rains begin coming in September, the roots will show signs of growth; then the plants can be safely transplanted. Oriental Poppies should be mulched in the Wintertime. This mulch does not have to be removed in the Spring for the leaves soon cover it. After the plants are once satisfactorily situated they should be allowed to remain undisturbed for a number of years.

The Iceland Poppies are very easily established for they self-sow very readily. If the flowers are cut every day, the plants will produce flowers all during the Summer months. They are extremely hardy and will grow in any soil.

PROPAGATION. The Oriental Poppies should be divided in August or September after the plants have been dormant for a month or so. The roots may be cut into pieces 2 inches long and planted in sandy soil in which case new plants may be obtained. It may be easier to transplant if the cuttings are placed in pots to root. Be sure that the root cuttings are not placed upside down. To avoid this make a straight cut at the top and a slanting cut at the base.

Plants may be grown from seed, which requires a great deal of care. The seeds should be gathered as soon as the pods are ripe and begin to open. They should not be sown too thickly and should be wintered over in the coldframe. As soon as new shoots start in the Spring, pot them up, and after they have attained a good size, plant them out in the open soil from the pots.

The Iceland Poppies self-sow readily.

PENTSTEMON—(Beardtongue)

(pent-stee'-mon. From *pente*, five, and *stemon*, a stamen; four fertile and one abortive stamen.)

The Pentstemons are beautiful border plants but do not do as well in the Northern states as in the Southern ones, where the climate is milder and the season of blooming is longer. They are very showy, growing from 2 feet to 4 feet high, are rather bushy and have very long, slender spikes which bear many trumpet-shaped flowers with hairy throats from whence the name "Beardtongue" comes. The colors range from white, pale rose, azure-blue, lilac, coral, scarlet, violet and purple.

SPECIES. *Pentstemon barbatus* has slender, tubular, deep scarlet-red flowers; the lower lip in each is bearded. The foliage is light green

and the stems are wiry and thin, giving an airy appearance to the whole plant.

Similar is the Torrey B., *P. torreyi*, which has larger flowers; the lower lip is not bearded.

The Eastern B., *P. hirsutus*, is commonly wild along the roadsides of the Eastern States. The stems are sticky hairy. The plants grow 3 feet tall. The flowers are purplish, an inch long. The leaves are long and narrow.

The Foxglove B., *P. laevigatus digitalis*, is one of the best. The leaves are long, narrow. The flowers are white or pinkish with the tube expanded at the middle. They bloom in June and July and grow 2 feet to 3 feet tall.

The Gloxinia B., *P. gloxinoides* Sensation has Gloxinialike flowers of varying colors—Rose lilac, cherry, crimson and purple. It grows about 2 feet high and is in bloom nearly all Summer.

There are numerous species from the Rocky Mountains which will be useful in the rock garden. A few worthy of cultivation are: *P. scouleri*, *P. menziesi*, *P. eatoni*, *P. azureus*, *P. unilateralis* and *P. acuminatus*.

USES. Pentstemons are very free blooming and are good for cutting purposes. Their graceful growth and variety of colors make them easily adaptable to almost any perennial border. The dwarfer ones are grown in rockeries.

CULTURE. A good, deep garden soil mixed with leafmold or sandy loam, in a well-drained situation which is somewhat shady, is the best place to grow Pentstemons. They like plenty of water in the Summer-time but cannot tolerate wet or soggy soil. Many are hardy, but Sensation requires mulching during the Winter; even then, in the colder climates it freezes out. Good drainage and loose, loamy soil are absolutely necessary to the growth of Pentstemons.



Torrey Beardtongue or Pentstemon, with huge masses of graceful spikes lined with bright scarlet flowers

PROPAGATION. They are propagated either by division, seed or cuttings. Cuttings should be taken in the Autumn, which is also the time to divide the roots. Plants may bloom the first year if the seeds are sown early. The varieties of *P. glloxinioides* are well treated as annuals, sowing the seed each year.

PAEONIA—Peony

(pee-oh'-ni-a. Named for Paeon, a physician.)

Peonies have captivated the world. The "old red Piney," that charming old-fashioned flower, is hardly as popular as it was in days now past, because the new, lovely and more delicately tinted varieties, which have been recently introduced, are crowding their old relative into the background. Peonies in great masses are now found growing around the small cottage out in the village or country, along roads and woodland paths, in gardens throughout the large cities and around the mansions of the wealthy, where they seem to have truly assumed that aristocratic yet charming air so in keeping with the occasion. There is no other hardy flowering plant which grows in the Northern States and endures the Northern Winters as does the Peony. Massive without being coarse, fragrant without being pungent, grand without being gaudy, various in form and color, beyond the possibility of being successfully superseded, they stand in the first rank of hardy flowers.

Peonies are grown both for their flowers and beautiful foliage. From the time the red shoots first appear early in Spring, when the flowers in an almost endless number of colors are massed on the bushes, and when the glossy green foliage takes on the autumnal tints of vivid carmine, purple, amethyst and orange, Peonies are in great demand. The average height is from 2 feet to 4 feet, each plant spreading out to almost the same distance. The flowers are borne either singly or in groups of two or three. There are single blooms very much like a wild Rose, except in size; semi-double flowers and double ones which are a round mass of uneven petals. Some of the flowers are so large and heavy that it often becomes necessary to prop them up so that the Spring rains will not dash them into the mud. The leaves are smooth, dark, glossy and divided. The colors of the flowers range from purest white with a mass of golden stamens in the center through all the shades of pink to the darkest of reds and purples. There are also some pleasing yellow varieties. Many of the newer varieties are delicately rose-scented, which makes them very much more valuable because the offensive odor of the early red "Piney" has been done

away with. Some of the varieties do not last very long, but if early and late varieties are planted, a succession of bloom can be had which will last for six or seven weeks. The greater majority of them are in bloom from about the middle of May on through June. The earlier blooming varieties combine well with many bulbs, especially Daffodils, Narcissi, Scillas, Gladiolus and Lilies, and are very charming when planted in among the Peonies, while Michaelmas-daisies, Delphiniums, and Gaillardias make a very suitable background.

In Bulletin No. 7 of the American Peony Society there is found a list of the best Peonies as determined by a vote of the Society members. The voting is on a scale of 10. A variety receiving a rating of 10 would be almost perfect, 7 fairly good, and below 5 not worthy of cultivation. The following varieties received a rating of 8.5 or above:

WHITE	PINK, ALL SHADES	Judge Berry
9.9 Le Cygne	9.8 Thérèse	La Lorraine
9.8 Kelway's Glorious	9.7 Solange	Mme. Auguste Dessert
9.4 Mme. Jules Dessert	9.4 Tourangelle	8.5 Germaine Bigot
9.3 Festiva Maxima	9.3 Walter Faxon	La Perle
9.2 Elizabeth Barrett Browning	9.2 La Fée	Mme. Emile Gallé
9.1 Frances Willard	9.1 Lady A. Duff	Maud L. Richardson
9.0 Baroness Schroeder	Martha Bulloch	Octavie Demay
8.9 Mme. Emile Lemoine	9.0 La France	Opal
Pleas' Jubilee	Milton Hill	DARK RED
8.8 Alsace Lorraine	Raoul Dessert	9.2 Philippe Rivoire
Enchantresse	Rose Bonheur	9.0 Longfellow
Laura Dessert	8.9 Georgiana Shaylor	8.8 Karl Rosenfield
8.7 Albâtre	Marie Crousse	M. Martin Cahuzac
Avalanche	Kelway's Queen	Richard Carvel
James Kelway	Loveliness	8.7 Mary Brand
8.6 Primèvere	8.7 Claire Dubois	8.6 Cherry Hill
8.5 Marie Lemoine	Mignon	Mikado
	8.6 Albert Crousse	8.5 Adolphe Rousseau
	Reine Hortense	
	Eugène Verdier	

USES. Peonies can be used in almost any position in any garden. These plants are equally at home planted as single specimens on the lawn, in tall grass, in the woods, or planted in beds and borders with other perennials and bulbous plants, or when massed by themselves. Peonies can be planted along woodland paths, at the ends and edges of shrubbery groups, at the bases of stone walls, or along drives and walks. They are at home in almost any situation, naturalizing as readily in woodland copses as in formal gardens. They make a rather dense growth and are often used in place of low hedges.



Peonies—everybody's flower

As for cut flowers, they are absolutely invaluable. If they are cut just as the bud is about to open and are placed in a cool room, the blooms will last many days. Since the newer varieties are sweetly scented, the flowers are now used to a greater extent in homes in vases, bowls and baskets. The stems are long, stiff and are splendid to use for decorative purposes for large functions where large flowers of rich coloring are needed.

CULTURE. Peonies abundantly repay good care and nourishment and do not require a great deal of care after they are once established. Preparation of the soil is one of the biggest factors in growing healthy plants. They are heavy feeders and require a deeply prepared soil. The best soil is a heavy loam, one which is not too heavy with clay or too light with sand. Stiff yellow clay, a sour soil or an abundance of fresh manure in the soil hinder the proper growth of the roots and plant. The bed should be prepared very deeply, the soil being mixed with well-rotted cow manure. Each plant should be given a space 3 feet in diameter for its development. The soil should be retentive of moisture, yet well drained, for the plants rot out if the ground is so low that the water will stand in pools around the plant during the Winter. The manure should not be mixed among the roots, but clean soil should be next to the roots and then the manure. The roots should be set in the soil so that the top eye is not more than 2 inches or 3 inches from the surface.

When the plants have finished blooming in the Summer, work must be begun to insure a good next year's crop. Weeds should be



Types of Peonies

- S.—Single, showing (g), guard petals; (s), stamens; (c), carpels or lobes of pistil.
 J.—Japanese type; stamens wider than in single.
 B.—Bomb type. The stamens become narrow petals, called petaloides.
 SD.—Semi-double. Many petaloides are quite wide and are mixed among the stamens.
 C.—Crown. The stamens are wider and petal-like. The carpels, which before have remained unchanged, are now petal-like.
 R.—Rose. In this type there is an entire transformation of the bloom.

kept down all during the Summer, for they rob the soil of its richness. The first Winter the roots are loose in the soil and will need a good coating of manure as a mulch applied after the ground is thoroughly frozen. This will prevent the roots from being heaved out of the ground, due to alternate freezing and thawing. The manure should not be allowed to remain about the plants in the Summer but worked into the soil. Diseases are spread by the presence of manure.

When once planted, Peonies should be left alone for a number of years, except for dividing and replanting, which should be done every eight or ten years.

It has been said that Peonies fade and lose their colors so readily. The delicate pink varieties fade to a white. This can be remedied by either cutting the stems when the bud is about to open, or by erecting a cheesecloth screen over the plants. This prevents the hot sunlight from bleaching out the color.

Although Peonies are free from insects, they are very subject to a pernicious bud rot. Many Peonies which do not seem able to mature their buds are affected with this disease. It can be prevented by avoiding manure about the crowns of the plants and by spraying weekly from the first signs of Spring until sometime in May. Bordeaux Mixture is the proper spray to use. Cut off every diseased leaf and bud to prevent carrying the infection from year to year in the soil.

Many Peonies have two, three or more buds to a single stem. If it is a single variety they should be left as they are because the spray effect of flowers produced is very attractive. But with the large double sorts, all except the largest center bud (terminal) should be removed. This disbudding throws all the strength and food into one flower, which is larger, finer and better in color. The buds should be removed when small.

PROPAGATION. Peonies are usually propagated by division of the clumps, but it is a slow process, taking from three to five years for characteristic blooms to appear. The tubers or roots resemble those of Rhubarb. The best time to divide them is during September or October. However, they may be divided and transplanted any time from the middle of August until the ground freezes in the Fall. If the plants are well established they will improve every year.

Peonies may be propagated by seeds which are sown as soon as they are ripe in coldframes where they should be kept for a year before transplanting. The seed should never be allowed to become thoroughly dry, for when once thoroughly dried it may take two years or

longer for the seeds to germinate. The first blooms are never typical of the plants; it takes from four to eight years to produce characteristic blooms. One must remember that growing Peonies from seed is interesting, not practical.

PHLOX—Hardy Phlox (Flameflower), Moss Phlox (Mosspink), (Wild-sweet-william)

(flox. From *phlox*, a flame.)

Gardens, both old and new, cannot be what they are unless Phlox are present in all their brilliant colors to enliven the Summer months just before the Fall flowers come into bloom and after the Spring flowers have finished. Phlox are old fashioned favorites and each one holds a bit of sentiment within its delicate fragrance that makes us realize that they are wonderful. With the new varieties which have been introduced during the last years, the new effects in colors, the large size and gorgeousness of bloom, they have become a class of flowers unsurpassed.



Left, Hardy Phlox, the range of varieties giving an excellent choice of colors; right, the Moss Phlox or Phlox subulata, used to edge a walk

The Tall Hardy Phlox, which are the ones most commonly grown in all gardens, are divided into two groups, those which bloom early and are known as *Phlox suffruticosa*, and those which bloom later, known as *P. decussata*. It is these two groups which have been improved so much within the last dozen years that they have now become invaluable assets to any garden. The flowers are borne in large heads or clusters at the tips of long, graceful, leafy stem which grow from 1½ to 3 feet tall. All of the flowers are very fragrant and many of the colors are clear.

VARIETIES. Alfred M. S. Pridham, the Phlox specialist at Cornell University, after trying hundreds of varieties writes that the choicest 12 varieties are:

R. P. STRUTHERS. Blooms at midseason. Shades from rose color to begonia rose. The eye color is approximately amaranth purple. The panicle is of good size, 8 inches, and compact. It has a slight fragrance. The variety attains a height of 30 to 36 inches, is a vigorous grower and has heavy textured, deep green foliage.

RHINELANDER. Blooms at midseason. Is begonia rose in color, with a distinct eye of rhodamine purple color. The panicle is large, 10 inches, and moderately compact. Is of slight fragrance. The variety is vigorous, tall, 30 inches, with foliage of medium texture.

ELIZABETH CAMPBELL. Blooms at midseason. In color the variety shades from approximately a deep rose pink to light begonia rose. The eye is small, well defined and between rhodamine purple and Tyrian rose in color. The panicle is ovate in shape, of medium compactness and slight fragrance. The variety reaches a height of 20 inches to 2 feet.

THOR. Blooms in the latter part of the midseason. In color it approximates peach red, but is modified by the luster toward scarlet to scarlet red. The eye is distinct and approximately amaranth purple in color. It is surrounded by a halo of white to amaranth pink. The variety possesses a strong fragrance. The heads are of good size and compact, and the individual flowers are large. The variety is a moderate grower, 28 inches tall and of medium textured foliage.

ECLAIREUR. Blooms in the earlier part of the season. In color the florets shade from rhodamine purple to a luster of deep scarlet red. The eye is approximately Tyrian rose in color and is surrounded by a halo of light mallow purple. The panicle is small, but dense, which tends to produce the purple effect. The variety is slightly fragrant, vigorous, reaching a height of 3 feet. The foliage is broad and of firm texture.

LA VAGUE. Blooms in the latter part of the season. In color it shades from phlox pink to mallow purple. The eye is distinct and deep Tyrian pink. The floret is bright, but not lustrous, and possesses a characteristic cupped shape. The panicle is flat to globose and quite open. The variety lacks fragrance, is vigorous, 20 inches tall, and has exceptionally heavy, broad, green foliage.

B. COMTE. Blooms in latter part of the season. The color ranges from deep purple to light aster purple. The luster is intense. The eye is amaranth purple in color. The panicle is of medium size, dense and of slight fragrance. The variety grows 36 to 60 inches tall in dense,

healthy clumps. The foliage is long, narrow and stiff, with recurved edge.

MRS. JENKINS. Is described in catalog as an early flowering pure white variety, having a large, compact panicle. The variety is of vigorous growth, reaching a height of 1½ feet.

MISS LINGARD. Is an early-blooming white variety of the suffruticosa type of Phlox. The eye is marked with light rhodamine purple, but may be creamy to pure white. The panicle is long, cylindrical and compact. Of slight fragrance. The variety forms medium dense clumps, 3 feet tall. The foliage is broad, smooth, and deep green in color.

JULES SANDEAU. Blooms at midseason and is approximately deep Tyrian pink in color, while the eye is of rhodamine purple color, surrounded by a halo of light Tyrian pink. The panicle is small, but compact; the individual florets are above the normal in size. The fragrance is distinct. The variety is vigorous, forming open clumps up to 2 feet in height. The foliage is dense, heavy textured and of a deep green color.

Dwarf Phlox. P. subulata. Almost everyone knows the Moss Phlox or Mosspink, as it is often called. It is dwarf, spreading in nature, with small, mosslike leaves. As it grows it forms dense mats, 12 inches or more in diameter, which flower very freely. The normal color is magenta pink and in April and early May the clumps are simply covered with myriads of flowers about an inch in diameter. We should grow the varieties: Vivid, larger and clearer pink; Lilac Moss, or Lilacina, a lovely soft lilac; or the white sort.

P. divaricata. Equally popular is the Blue P., the so-called Wild-sweet-william, *P. divaricata (canadensis)*. This sort has clusters of bloom which vary when found wild from nearly clear blue to a rosy purple and white. *Laphami* is a cultivated variety in which the flowers are clear gray blue and the petals are not notched. This is found in the Mississippi Valley.

P. procumbens. Plants usually cultivated under the name of *P. amoena* should be called *P. procumbens*, a hybrid between *P. subulata* and *P. stolonifera*. The foliage is a little wider than *P. subulata* and the flowers are bright rose purple, a splendid subject for the rock garden. "The true *P. amoena* thrives only in sterile acid soils and is not found in gardens," writes Wherry.

P. adsurgens. This sort grows but 6 inches tall with sparse foliage. The flowers are rose or whitish. It is a native of Oregon.

USES. The tall Hardy Phlox are all fragrant and the flowers are splendid for cutting purposes. With the new and striking colors, almost any effect can be carried out in the garden, either by planting them in solid beds where the colors grade into each other from dark to light, or in long beds along drives, woodland walks and paths, or in front of shrubbery; or combined with other perennials in hardy borders. By

planting carefully, a succession of bloom, lasting from early April until late in September or October, can be carried out by just using the different varieties of Phlox. The best effects are gained by planting masses of each color together.

The Moss Phlox or *Phlox subulata* grows wild and blooms very early in the Spring. Because of its spreading habit it is usually found growing on the surfaces of rocks, in fields or over dry banks. In the rockery it is often planted in dry corners because it withstands drought so well, and its dense growth soon makes an admirable ground covering, especially when hundreds of small clusters of pink and white flowers come out in the Spring. It is also used as an edging for borders, in cemeteries, on terraces, between stepping stones and in a great many other places. *P. divaricata* is splendid for huge masses, either in wild places or the perennial border. They bloom at the same time as Tulips.

CULTURE. Phlox need a great amount of moisture and should be watered regularly in dry weather. It is even advised to mulch the plants during the dry Summer months to conserve what moisture is present. They should not be planted in the grass because the grass will get all the moisture. The soil should be prepared deeply to a depth of about 2 feet; it should be well drained and moderately rich. Since Phlox are gross feeders, good rich soil and plenty of moisture are absolutely necessary for their growth.

The Dwarf Phlox plants should be set about 10 inches or 12 inches apart and the Tall Hardy Phlox about 18 inches apart. Young plants can be set out any time in the Spring.

James H. Bissland, in "The Flower Grower," writes:

"The deeper the roots penetrate, the cooler they will be, and the more continuous the supply of moisture; hence, a well prepared bed is the first step. The deeper you can dig and the more subsoil you can break up and replace with rotted turf, compost, etc., the better. I should say 18 inches as a minimum and deeper if you have the time and patience. When you back fill do not raise the beds above the level of the ground as this will cause a dry surface. Plant the Phlox in this bed, but do not plant them too deeply. After the tops are well up cover the entire surface of the bed with 3 inches of leafmold. This will keep the direct rays of the sun off the roots of the Phlox, keeping them cool and retaining moisture. This point is most important.

"In my own nursery, where the Phlox plantings are too extensive to permit of this treatment, I find a good thorough dust mulch, produced by deep and frequent cultivation, to produce about the same results. Heating of the roots will cause your plants to wither and turn brown, and will tend to produce undesirable magenta colors in place of soft pinks.

"You will get the largest flower trusses and best colors from newly-made divisions. For an exhibition Phlox, divide in September, leaving each division with not more than three eyes. Thus you will get from one to

three flower stalks per plant the following year, each of large size and good color. If your objective is merely improved size and color and not extreme size, as for color masses in a garden scheme, use large divisions. A large clump, five or six years old will give poor color, poor size, poor form, and will be more subject to mildew and drought.

"If you have a clay soil, remove it entirely from your beds and replace with material from your compost heap; or dig in plenty of sand and humus. Clay soil bakes too readily. Phlox love a porous, cool soil, but you must also provide food."

If the first display of flowers is cut back as soon as the blooms are faded, a second crop of blooms will come on before Fall. Phlox will grow either in full sun or in partial shade.

During damp seasons, especially when the plants are crowded, the Phlox are sometimes attacked with mildew. As soon as the first signs of this appear, the plants can be sprayed with Bordeaux Mixture, or if powdered sulphur is dusted on the leaves in the morning when the dew is on them, it will soon check the mildew. The latter is sometimes caused by having the plants too close together so that good air circulation around the lower stems is prevented. Thin the plants to a few stems as suggested above.

Red spiders also attack Phlox. This can best be determined when it is noticed that the lower leaves turn a rusty brown. A forceful sprinkling with a hose on the underside of the leaves should be applied. If, however, the attack is very severe, it is best to cut the stalks back near the ground and let new growth start.

The plants should be mulched every Winter with well decayed manure.

PROPAGATION. Phloxes are propagated by division of the clumps; by seeds, which may give many new and interesting colors and types, but usually resulting in magentas and muddy colors; by cuttings made from the stems. Dividing of the clumps should be done in the Fall or in earliest Spring before much growth has been made.

Root cuttings. Except for Miss Lingard and other *suffruticosa* varieties, most commercial dealers propagate by root cuttings. Plants may be dug in the Fall with as many roots as possible. Cut off the larger roots up to several inches of the crown. Replant the old crown and water it for it will grow readily. Cut the roots into 2-inch lengths and sow them thickly over the top of a flat filled with loam and sand. Cover $\frac{1}{2}$ -inch deep with sandy soil. As soon as the young plants have made a few inches of growth, generally about late June, transplant them to a prepared bed.

A simpler way is described by E. I. Farrington, in "Horticulture," August 15, 1923. He writes:

"Take a sharp spade, run it straight down half way, then turn it square around and cut off the roots. The roots you leave in the ground will put a head on themselves and there will be a great mass of them. Seedlings bloom the first year; these do not. In the Fall, plant them out and next year you will have fine blooming plants. If you separate the stools you take up and plant them out, you will have good plants in a year's time."

PHYSOSTEGIA—False-dragonhead (American-heather), (Obedientplant), (Mexican-heath), (Accommodation-flower)

(fy-soh-stee'-ji-a. From *phusa*, a bladder, and *stega*, a covering; the formation of the calyx.)

The False-dragonhead (*Physostegia virginiana*) is another one of the few August blooming plants. It is extremely beautiful, with spikes

of rosy pink, lilac or white flowers which are tube-shaped and similar to a tiny Snapdragon blossom. The buds and flowers grow on the stem as if growing on the four sides of a square. The plant grows about 3 feet or 4 feet high, spreads out and has very pretty foliage surrounding the graceful spikes. It begins blooming in July and lasts through September. A splendid sort is known as Vivid; it grows less than 2 feet tall and has dense spikes of deep colored flowers which come later than the type. The names, Obedientplant and Accommodation-flower, are derived from the fact that the flowers remain at any angle at which they are turned, inasmuch as they seem pivot jointed.

USES. This plant is splendid in a border, but because the flowers are pale, brighter contrasting colors should be worked in around



The rampant growing False-dragon-head or Physostegia

to bring out the pink or lilac color. The flowers last for a long time and are very useful for cut flowers. They are good in the border because they bloom at a time when many other flowers have finished. They are especially effective near waterfalls, along stream banks or when placed in front of dark green shrubs.

CULTURE. *Physostegias* require a rather moist soil in either sunny or shady places. The plants spread very rapidly and will tend to become a nuisance unless they are divided every year or two. They are of easy culture and should be planted about 2 feet apart in good soil.



Balloonflower or *Platycodon*, bears amusing balloonlike buds before the flowers open

PROPAGATION. *Physostegias* are easily started from seed, or new plants can be had when the plants are divided every year.

PLATYCODON—Balloonflower

(plat-i-koh'-don. From *platus*, broad, and *kodon*, a bell; refers to the form of the flower.)

The Balloonflower is very closely allied to the *Campanulas*. It grows erect and the stems are rigid. The flowers have five petals and open out rather flat, but when in bud they look like inflated balloons, from whence the common name is derived. The flowers are both single and double. They are blue and white in color and sometimes will have blue or white veins which make them appear as if they had been streaked. They begin blooming about the middle of June and last

throughout the Summer. The Chinese Bellflower or Balloonflower is known as *Platycodon grandiflorum* and grows 3 feet tall. *P. g. mariesi* has deep blue, bell-shaped flowers, some of them nearly 3 inches across, but it is more dwarf, only growing about 12 inches high. This variety is preferable to the taller sort because it does not need staking.

USES. Platycodons are splendid border plants, for the plants are neat and well formed and they are in bloom all through the Summer months. They are also planted among shrubbery. The flowers can be cut and last well.

CULTURE. These plants nearly always flower the same season they are planted. They grow readily, sending up long spikes, so that nicely shaped bushes are formed in a couple of seasons. Medium sandy loam is the best soil. Do not cut the old stems back in the Fall when the blossoms are gone, but let them die away naturally so as not to injure the crown, which should be set about one inch below the surface. Slight Winter protection is beneficial.

PROPAGATION. The most successful method is by seeds. The root stalk is fleshy and thick and a great deal of care must be exercised in dividing it.

PLUMBAGO (See *Ceratostigma*)

POLEMONIUM—Greek-valerian (Jacobs-ladder) (Charity)

(pol-i-moh'-ni-um. From *polemos*, war; according to Pliny a dispute about its discovery led to warfare.)

Jacobs-ladder is a very ornamental and graceful flowering plant of early Spring and Summer. The flowers are blue, or white, flat or bell-shaped, and are borne in spikes; the foliage is very finely cut, much resembling fern fronds. *Polemonium caeruleum*, or the Greek-valerian, is rather bushy, with long spikes about 2 feet high, of sky-blue flowers with golden anthers. The leaves are 11- to 21-parted. *P. reptans*, a native of our woods is dwarf, growing 6 inches or 8 inches high, with light blue flowers which come into bloom early in April. The leaves are 5- to 15-parted. *P. humile (richardsoni)* is very dainty and dwarf with small spikes of blue flowers growing from small rosettes of green-fernlike leaves. All the varieties bloom from April or May on through August or September.

USES. Most of these plants are splendid for rockeries or in low beds and borders. The taller ones are used in front of shrubs. Some are grown as alpine subjects or in wild gardens. The flowers can be cut, and with their delicate foliage, make up beautifully for vase or basket work.

CULTURE. Polemoniums are very easy to grow, thriving best in dry places where the soil is rich and well-drained and with some shade.

PROPAGATION. These plants are propagated easily from seed sown in the Fall or by dividing the plants.

POLYGONUM—Fleeceflower (Knotgrass) (Knotweed)

(po-lig'-o-num. From *polus*, many, and *gonu*, a knee; refers to the numerous joints of the stems.)

The Fleeceflower is a very ornamental plant for any garden because the foliage is so beautifully tinted in Autumn. Some of the varieties grow very high and greatly resemble Bamboo in growth. *Polygonum sachalinense*, Sacaline, is one of this type, attaining a height of from 9 feet to 12 feet, with leaves 12 inches long and sprays of greenish-white flowers. The stems are curving or arched. *P. affine* (*brunensis*), is the dwarf variety, growing 6 inches to 18 inches high, with bright rosy red flowers and beautifully colored foliage. *P. amplexicaule*, the Mountain-fleece, grows about 2 feet or 3 feet tall and has deep red flowers which come into bloom very late in September and last until October. *P. cuspidatum* (*sieboldi*) grows about 8 feet tall, has small, glossy, abruptly pointed green leaves, and the entire plant is covered with small white flowers. Most of the varieties are in bloom from July through August.

USES. The plants of *P. sachalinense* and *P. cuspidatum* are used mostly in wild gardens or under



Fleeceflower or Polygonum, with its Buckwheat-like flowers

trees, where an immense shrubby perennial is needed. They spread widely and become weedy; for this reason they should not have a place in the perennial border. The other varieties are grown in front of shrubs or herbaceous borders. Some of the dwarf ones are used in rockeries. Any of these are very effective when planted in masses, especially along banks of streams or in moist places. Some of the flowers are valued for cutting.

CULTURE. Some *Polygonums* require a great deal of space, for the plants are very large. They are moisture loving and should be planted in places where the ground is naturally very moist and does not dry out easily. They will grow almost anywhere, in any soil, and need very little attention.

PROPAGATION. They are propagated by seeds and division of the plant.

POTENTILLA—Cinquefoil (Fivefinger)

(poh-ten-till'-la. From *potens*, powerful; supposed medicinal quality.)

The *Potentillas* greatly resemble Strawberry plants, especially in the manner of growth and the foliage. This is a trailing plant which covers the ground rapidly and sends out roots as it goes along. The flowers are very showy, the colors are very bright, with reds, oranges and yellows predominating. These flowers are both double and single and are borne in great profusion from June to August. The single blooms look like a Buttercup or a Strawberry flower. *Potentilla atrosanguinea*, a parent of many lovely varieties, has single, rich crimson blossoms. Miss Willmott is cerise, and William Rollison is a combination of orange and mahogany-red with double flowers. There are a great many varieties, nearly all of which have double flowers.

USES. *Potentillas* are most effective when planted in rock gardens where they can grow over large boulders of rock and need not be thinned out every year. They are excellent to plant in bare places where a good ground covering is needed, for the plants grow rapidly and soon form a thick covering.

CULTURE. These plants should be set about 18 inches apart in any garden soil, but they do best when planted in rich, light, loamy soil. They like exposed places and will require thinning out every year. There should be a light mulch of leaves placed over the plants during Winter.

PROPAGATION. *Potentillas* send out roots along the trailing stems; hence, new plants are very easily obtained by thinning out. They are also easily grown from seed.

PRIMULA—Primrose, English Cowslip, Oxlip, Polyanthus

(prim'-eu-la. From *primus*, the first; refers to the earliness of flowering.)

Hardy Primroses are showy plants which fit in well with any Spring bedding design. The small flowers are graceful and dainty and the varieties can be so chosen that they will be in bloom from April for a month. Primroses grow from 6 inches to 8 inches high and have light green, hairy leaves. The colors of the hardy sorts range from white to the darkest crimson and yellow. Some of the varieties are double, and others present this appearance because the petals are wavy and crinkled

The commoner hardy sorts of Primroses are derived from *Primula elatior*, *P. veris* and *P. acaulis* (*vulgaris*). These are known as Polyanthas. They range in color from pure white, yellow, deep orange, scarlet and purple. These are much of one type, the flowers being borne in umbels or clusters of six to twelve flowers.

There is, however, another interesting species, *P. japonica*, the Japanese Primrose, which bears the flowers so that one umbel, or cluster,



Primroses—a mass which tempts us to imitate it

is above another. The colors vary from rich dark crimson through the intermediate tints to white. The petals are of a heavy texture and waved.

P. denticulata var. *cachemiriana*, the Indian Primrose, has pale blue flowers produced in globular heads; the underside of the leaves is golden.

P. auricula has thick, obovate, grayish-green leaves in a rosette. It produces few off sets. The flowers vary greatly in color, yellow, red and purple, generally with an eye. They are evergreen and need careful Winter protection to prevent the dying of the leaves.

The Silverdust P., *P. pulverulenta*, resembles *P. japonica* in habit, but the whole plant is covered by a white powder. The flower stems are 2 feet tall, bearing large whorls of brilliant crimson flowers. The Dalrymple strain contains many charming colors.

The Primroses above mentioned are only a few of the easily grown sorts, but in the moister climates one can also try the following: *P. sieboldi*, with heart-shaped leaves and white, rose, and dark violet, almost blue, flowers; *P. littoniana*, with dense spikes of deep violet-purple flowers; *P. cockburniana*, with orange flowers; and many others.

USES. Primulas make delightful subjects for the rock garden, edging a shady border or against old walls. They naturalize readily along streams, woods or shrubbery and are also suited for growing in porch boxes or in pots. The flowers are fragrant and make splendid cut flowers.

CULTURE. Primulas are not difficult to grow, yet they reward one for any amount of trouble. One of the first requisites is to keep the soil moist. The plants will die if they are allowed to pass through the dry Summer months without plenty of water. Primroses should be planted in rich, well drained soil in a shaded nook in order to protect the plants from the hot sunshine during the Summer. Slight protection during Winter is needed, such as a light mulching of leaves and straw. In the Fall, if the crowns of any of the plants are above the surface of the soil, these plants should be taken up and reset. Primroses resent a great deal of cultivation; good, rich soil, partially shaded quarters and plenty of moisture are all they need.

PROPAGATION. Primroses are usually propagated by seeds sown in March in a coldframe or in May to July outdoors in shaded places. The seed should just be scratched into the surface soil and firmed. Primrose seed is erratic in germination. Some seed will germinate in several weeks; others take as many months. The young plants should be transplanted to a coldframe or a shaded bed. The plants can also be divided in Spring immediately after flowering or in the Fall.

PYRETHRUM—Painted Lady (Pink Daisy)

(py-ree'-thrum. From *pyr*, fire, alluding to the acrid roots)

The form of the Daisy is admired by all, so that it is strange that more persons do not grow the lovely Daisies known as Pyrethrums. The flowers are bright in color and are borne on long stems. They might be called Spring Chrysanthemums, for they bloom principally in June. Many of the sorts are attractively doubled. The colors range from deep rich crimson to light pink and white. They grow 2 feet to 3 feet tall. The proper botanical name is *Chrysanthemum coccineum*; the catalogs also call them *Pyrethrum roseum* and *hybridum*.

USES. The English are so fond of these flowers that they have many named varieties. Of Pyrethrums *The Ladies' Field* writes:

"Among the most satisfactory of all the flowers in the garden we we may count double Pyrethrums. They are of almost infinite variety, which time seems powerless to wither, and which custom never stales. Nearly every year sees some new development, the result of skillful raising and discriminating selection. They have many good qualities to recommend them.

These flowers are extremely showy, and are as hardy as they are effective. They are of the easiest possible culture, and as cut flowers they are invaluable, lasting for full two weeks in full and fresh beauty. This, when one is away from one's own garden and has to barter for flowers for the good contentment of the moment, is a great desideratum. In the borders they last for several months. Pyrethrums are in their height of beauty in June, but by means of judicious thinning and stopping, and by the entire prevention of the formation of anything like seed, they may be kept blossoming all through the Summer. If this be too much trouble, and a continued succession is not wanted, the plants may be cut right down after their Midsummer blossoming, when they will spring up with rejuvenated vigor, and blossom gaily again in the Autumn as vigorously as if it were their first effort for the year."



Pyrethrum or Pink Daisy

Because the seeds do not reproduce true to doubleness, it is wise to buy the seed of doubles only as they can be depended upon to produce a large proportion of singles.

CULTURE. The *Pyrethrums* grow nicely, even in partial shade, but they must have perfect drainage. An important point in their culture is alluded to above; they should be prevented from seeding and if cut down directly after they have produced their main crop of bloom, they will bloom profusely late in Summer. The nurserymen find them difficult to ship.

PROPAGATION. Sow the seeds or divide the plants in Spring. Grown from seed, there are many nondescript colors produced which must be weeded out.

ROMNEYA — Canyon-poppy (*Matilija*-poppy), (California Tree-poppy), (White Bushpoppy) (Dream-of-the-desert)

(rom'-ne-a. Named for Rev. Dr. T. Romney Robinson, Irish astronomer.)

A glorious miracle! Thus has the *Matilija*-poppy been described. With its transparent, delicate, silvery, crinkled flowers which look as if they were made of the finest white silk crepe, would they not indeed present a glorious appearance?

The Canyon-poppy or the *Matilija*-poppy (*Romneya coulteri*) is a native of the Southwestern States (particularly California and Mexico) but with proper care, it can be grown equally well in the Northern and Eastern States. The flowers greatly resemble a large, white single Peony. It is as large, being 4 inches to 6 inches in diameter, and has a mass of golden yellow stamens in the center of the pure white crumpled petals. The leaves are bluish-green and are very deeply cut. This Poppy is a semi-shrub and grows from 4 feet to 6 feet high, spreading out each year until large clumps are formed. The flowers come into bloom about the end of June and last until the first of September; they are borne singly on long stems, each stem having from six to twelve or fifteen blooms. The individual flowers last about three days and have a delightful Primrose-like perfume.

USES. The Canyon-poppy is grown in clumps in parks or gardens or in protected semi-wild places. The flowers last well in water and their delightful perfume and delicate satiny beauty make them most acceptable in any room.

CULTURE. These plants should be planted in warm, porous, sandy loam on a southern exposure. The soil should be free from stagnant moisture or water at all times, and especially so during the dormant season in Wintertime. Before the heavy frosts penetrate the roots,



The lovely Canyon-poppy, *Romneya*, is hardy in cold climates

they should be heavily mulched. After the plants are once established, they should be left strictly alone; even cultivation around the roots seems detrimental. Like herbaceous perennials, the stems die to the ground each year and the flowers are borne on the new growth which comes each Spring.

PROPAGATION. The Canyon-poppy can be grown from seed, but this is a rather unsatisfactory method. Root cuttings are the surest way. The roots resemble thick prongs to which very few fibers are attached. Spring is the best time for transplanting.

RUDBECKIA—Coneflower, Goldenglow, Brown-eyed-susan

(rud-bek'-i-a. Named after O. Rudbeck, a Swedish botanist.)

The garden's gold is greatly enhanced in Autumn by the sorts of Rudbeckias, especially the Goldenglow, which is the double form of

Rudbeckia laciniata. Everyone knows this common perennial and admires its wealth of bloom. One of the handsomest Coneflowers is *R. speciosa newmanni* which bears golden yellow single Daisy-like flowers with a high purple cone in the center. It blooms from August to September and grows several feet tall. There is an interesting sort which has smooth, gray-green, Cabbage-like leaves, known as *R. maxima*. The plants grow 6 feet to 8 feet tall and bear bright yellow flowers, 4 inches or 5 inches in diameter, upon, long, stiff stems. The cone at the center is often 2 inches high. The plants are a trifle tender. Another grayish sort is *R. subtomentosa*, but in this case the leaves and stems are densely covered with hair. The flowers are brilliant yellow with a chocolate center and are borne in large clusters. This sort also blooms in late Summer and early Fall. The Autumn Sun, *R. nitida*, has rich yellow flowers in which the rays are decidedly drooping. It blooms from August to October. *R. triloba*, the Brown-eyed-susan, is a biennial sort with yellow flowers which have orange or purple-brown markings and a black purple cone in the center.

R. purpurea, the Purple Coneflower, is discussed under *Echinacea*.

USES. The showy character of the plants makes them especially useful in bold masses for the border. The Goldenglow is valued where there are outbuildings, fences, and unsightly objects to be hidden. All the sorts serve admirably as cut flowers, for the stems are long, and the blooms are lasting.

CULTURE. The plants thrive anywhere, but are especially adapted to sunny places. When many of the sorts are cut back after flowering, they will send up a second crop of flowers. The Goldenglow will need to be staked and sprayed for plant lice.

PROPAGATION. All the sorts, except Goldenglow, may be grown from seed, but the usual method of propagation is by division of the plants in early Spring. Some of the wild Rudbeckias, generally known as Black-eyed-susans, are biennials. These are raised from seed but as they usually self-sow, further seeding is generally unnecessary.

SALVIA—Sage

(sal'vi-a. From *salvo*, to save; in reference to its medicinal qualities.)

Many persons are familiar with the Scarlet Sage and it is of this plant that many persons will think, but we shall speak here of the hardy Sages.

LIGHT BLUE SALVIAS. *Salvia azurea grandiflora*. This species is one of great beauty, bearing light azure colored flowers in great pro-

fusion upon tall, slender spikes. The plants grow from 3 feet to 4 feet tall and bloom from August until frost. This is a trifle too leggy in growth.

S. farinacea, the Mealycup S., closely resembles the former species, except that the calyx enclosing the flowers is a mealy white. It is, therefore, a splendid sort, better than the former, the blue flowers contrasting with the grayish stems and calyxes. Some persons have said that this species resembles the Lavender, but it is, of course, without the fragrance of true Lavender. Some gardeners advise that this sort be treated as an annual, sowing the seeds each year, as it almost never lives over Winter in the open soil.

S. uliginosa is also a blue sort, but the throats of the flowers are white. The plants grow 5 feet to 6 feet tall and bloom from July until



The Azure Sage is charming in the Fall months

frost, being especially valued for late Fall. In general appearance it is similar to *S. azurea*.

S. sclarea, Clary, has large, broad leaves, 9 inches long, which are hairy and toothed. The floral leaves are rose and white. This is a biennial.

DEEP BLUE OR VIOLET SALVIAS. *S. nemorosa* (*virgata nemorosa*), the Violet S. The purplish-violet flowers are produced in dense clusters in July. The calyxes and stems become reddish. It is wise to cut the plants back after flowering, in which case they bloom again in Autumn.

S. pitcheri, a deep blue form of *S. azurea*, is greatly admired, but its name is not widely established so that many catalogs consider *S. pitcheri* a synonym of *S. azurea*.

S. patens, the Gentian S., is the deepest indigo-blue, a most unusual color, but the large flowers are not produced in great profusion. It must be treated as an annual.

USES. Most sorts of Salvias are interesting border plants, where they make an attractive appearance grown in masses. They are generally good cut flowers as well.

CULTURE. Salvias, although of easy culture, require some attention. Except for *S. azurea grandiflora* they are not perfectly hardy and will need some protection during the Winter. Plant Salvias in the sun and give them from 18 inches to 2 feet on all sides. The roots of *S. patens* and *S. farinacea* may be dug and wintered in a cool cellar.

PROPAGATION. Some sorts may be divided in the early Spring. *S. farinacea*, *S. patens* and *S. uliginosa* are raised from seed sown in the early Spring, in which case, they bloom the first year from seed.

S. farinacea self-sows freely in the Midwest.

SAXIFRAGA—Saxifrage

(sak-sif'-rah-ga. Literally from Latin means rock-breaking.)

To one who is not a specialist in Saxifrages it is almost a sacrilege to write of them. There are 400 species according to Bailey. Most of them are rock garden perennials, but one is a house plant.

The Strawberry-geranium, or Strawberry Saxifrage (*Saxifraga sarmientosa*) is a pot plant which produces round leaves with heart-shaped bases and round teeth. The upper surface of the leaf is veined white, the lower surface is deep red green. The plants produce numerous pendulous runners which hang over the sides of the pot in great profusion. The flowers are white with two very large petals and three small ones.



One of the most showy rock plants, the Leather Saxifrage, *S. crassifolia*, has large leaves and bright rose flowers

BERGENIAS. Three species, called *Bergenias* by Bailey, have large, thick heavy leaves: *S. cordifolia*, the Heartleaf Saxifrage, has leaves with rounded teeth which are almost round and heart-shaped at the base. All three of these species have large clusters of deep pink flowers.

S. crassifolia. The Leather Saxifrage has leaves longer than round; that is, obovate to long-obovate leaves which have wings on the petiole. They are slightly toothed or sometimes without teeth but never hairy margined.

S. ligulata (*Megasea*), the Rajah Saxifrage, has round or obovate leaves which are sometimes heart-shaped at the base. They may have scalloped margins, but unlike the other two, the margins have stiff hairs (*ciliate*).

NATIVE SORT. A low tufted sort, *S. virginensis*, grows in moist rocks from New Brunswick to Georgia and Tennessee. It produces a spray of white bloom less than a foot tall.

MOSSY SORTS. There are a number of species which produce tufts of mossy leaves. This group includes:

S. caespitosa. Low tufts of leaves, 3-lobed. Flowers white.

S. decipiens. Tufted plant with leaves cut into three to five lobes. Flowers white or pink.

S. oppositifolia, the Twinleaf *S.* Densely matted plant 2 inches tall. The flowers are rose or purple.

ENCRUSTED SORTS. These sorts vary greatly in habit from lichen-like plants to tall species which produce rosettes resembling a *Sempervivum*. The group includes:

S. aizoon. Grows 20 inches tall with basal rosettes of leaves which have encrusted white teeth.

S. cotyledon pyramidalis, the Speckled Pyramid *S.* Grows 4 feet tall with rosettes of tongue-shaped, toothed leaves 3 inches long. The fragrant flowers are white, veined pink.

S. longifolia. Grows 2 feet tall with long-spatulate leaves in rosettes. They also have the encrusted margins. The flowers are white, sometimes spotted purple.

S. macnabiana. A hybrid between *S. cotyledon* and *S. lingulata*. The flowers are white, spotted purple.

CULTURE. Supply perfect drainage in Winter for the mossy and encrusted sorts. They like a stony soil which gives them a cool root run in the Summer. They are hardy to the cold but dislike the hot Summers of many American gardens; therefore give them partial shade.

PROPAGATION. Sow the seed in early Spring in boxes, pots or in a frame. Cover the seed ever so slightly with sand and cover with glass. After germination transplant to boxes.

Cuttings can be made after flowering.

Most sorts make many offshoots so that this is a ready means of increase.

SCABIOSA

(scab-1-o'-sa. From *scabies*, the itch; reputed as a cure for the disorder.)

To those persons who are familiar with the annual sorts of *Scabiosa*, we need only say that the perennials resemble the annuals, except that the perennials have shorter florets at the center, while in the annual sorts the flowers are made up of florets of more uniform length. *Scabiosa caucasica* is the commonest perennial with flowers either light lilac blue or white. The plants grow 2 feet to 3 feet tall. The leaves are not cut as is the case with the annual sorts. It blooms from June to September. Recently Isaac House has placed on the market a marvelous strain

with exceedingly long stems and a great range of excellent colors. *S. japonica* grows 1½ feet tall; the flowers are violet-blue and the leaves are somewhat lobed. *S. ochroleuca* is a sulphur colored species growing 1½ feet tall.

USES. The graceful, long, wiry stems of the Scabiosa are attractive in the border, rising as they do from a tuft of leaves upon the soil. They are best used in the front of the border. As cut flowers they are long keeping and are easily arranged in vases.

CULTURE. They prefer well drained locations and a sunny exposure. The plants are said to prefer limestone soil. They winter over excellently unless standing in water-logged soil. Plants older than three years deteriorate.

PROPAGATION. Scabiosas are readily increased from seed or by division of the plants. The strongest plants are best raised from seed. Mr. Cecil Davis writes that "in saving seed, that produced by the central flowers should be chosen." The seeds are best sown in Spring, but the plants sometimes do not bloom until the next year.

SEDUM—Stonecrop (Live-forever)

(see/-dum. From *sedere*, to sit; the plants grow or sit upon stones.)

If there is a rocky spot in your garden you will desire a number of sorts of Sedums, for they are most interesting in habit, leaf and flower. Sedums are wild with us in America, but there are also many sorts in Europe and Asia.

SPECIES. Only an expert can determine the proper names for the various sorts of Stonecrop but, roughly, they may be grouped as follows:

TINY-LEAVED SORTS:

Sedum acre. Goldmoss. Wallpepper. This low, tufted perennial spreads over the soil. The leaves are small, attractive, light green. The flowers, bright yellow in color, completely cover the plants and open in June and July. It succeeds in sun or half shade. Surely identified from other similar ones by their peppery leaves when eaten.

S. anglicum. Grayish leaves. Not quite hardy. Flowers white.

S. dasyphyllum. Leafy S. Gray leaves tightly clustered together seeming to be bronzy beads. The flowers are white, tinged pink.

S. lydium. Lydian S. Forms a dense cushion of light green leaves, turning red in the Fall. The flowers are pink.

S. pulchellum, the Texas S. Purdy says that it needs moist soil. It is an evergreen with cylindrical leaves and resembles a tiny Spruce.



The Showy Stonecrop, a graceful though sturdy plant for all gardens

The rosy purple flowers are $\frac{1}{2}$ inch across, produced upon clawlike branches. Some forms are annuals, but in favorable locations they self-sow their seeds freely.

S. reflexum. Jenny Stonecrop. Has longer leaves than *S. acre* and with a brownish tint.

S. sexangulare, Hexagon S. (resembles *S. acre* but with smaller plants and leaves). Leaves arranged so as to form six-angled branches.

S. stahli has small purple tufts of leaves.

WIDE-LEAVES SORTS

S. kamschaticum. Orange Stonecrop. A sort with toothed leaves, bright yellow flowers growing 8 inches to 10 inches tall.

S. sarmentosum. Stringy S. Medium flat leaves. A rapid spreader. The bright yellow flowers are produced in flat sprays. Likes boiling sun. It soon becomes a rampant weed in a rock garden of choice subjects.

S. sieboldi. This sort has round, gray leaves borne in clusters of threes and pink flowers produced in September. The plants grow less than a foot tall. In the Autumn the leaves become pinkish.

S. spectabile. Showy Stonecrop. This is one of the handsomest of all Sedums. It has pink or rosy-red flowers produced abundantly in flat clusters. The leaves of this sort are thick and juicy, often 3 inches long. The flowers open in late Summer and remain in bloom several months. The varieties Brilliant and atropurpureum are superior to the wild sort.

S. stoloniferum and *spurium*. Running S. Branches prostrate, rather triangular leaves. These two sorts are similar. *S. stoloniferum* has red stems and pink flowers, whereas *S. spurium* has flowers ranging to deep crimson.

S. ternatum. Mountain S. The leaves are in 3's. It grows well in shade and damp places. Resembles *S. stoloniferum* but with white flowers.

S. triphyllum, *S. telephium*, and *S. telephioides* are similar. *S. triphyllum* is the old Liveforever of gardens. The leaves are alternate, toothed, and light green. The purple flowers are in dense cymes. *S. telephioides* has purplish leaves and pale pink flowers. *S. telephium* has red-purple flowers with strongly ascending leaves which are toothed only near the apex.

USES. For perennial borders the Stonecrops are dainty and effective edging plants. As a cut flower the Showy Stonecrop is attractive. All the Sedums are entirely at home in the rock garden. For planting in rock steps, between stepping stones and for a ground cover the dwarf sorts are unexcelled.

CULTURE. The Sedums generally prefer a sandy soil; at least it must be perfectly drained in Winter. Generally the Stonecrop thrives best in sunbeaten places, but many of them may be coaxed to grow in shaded places beneath trees and shrubbery.

PROPAGATION. The propagation is simple: Each piece of the plant may be rooted and will grow into a good plant in a short time. They also grow from seed.

SEMPERVIVUM—Houseleek

(sem-per-vy'-vum. From *sempervivo* to live forever.)

Who does not know the rosettelike plants commonly called Hen-and-chickens or Houseleeks. Since we are now all so interested in rock gardens and walls, there has been a great demand for information about these popular plants.

The Roof Houseleek, *Sempervivum tectorum*, is the commonest sort. There are 50 to 60 leaves which are wider above the base and

sharp pointed. The offsets come out on stalks. The flowers are pinkish red on one-sided curving branches of the panicle.

The next most distinct sort is the Spiderweb H., *S. arachnoideum*, which has about 50 leaves connected by strands of a cobwebby growth. The young rosettes are sessile; that is, they are not borne on long stems. The flowers are bright red.

The only species to which "Standardized Plant Names" applies the common name of Hen-and-chickens is *S. soboliferum*, which produces globular rosettes seldom over 1½ inches in diameter, with 60 to 80 light green smooth leaves which have hairy margins. The flowers are pale yellow.

A number of sorts are commonly seen in gardens and B. Y. Morrison says that he has plants under 200 names. Mr. Morrison of the Bureau of Plant Industry has translated an interesting monograph on *Sempervivums* written by Henri Correvon and published in "The National Horticultural Magazine" beginning January, 1930, and running for over a year. The reader who desires to check his plants may refer to these notes in libraries.

CULTURE. There is an opinion abroad, which Hamblin doubts, that *Sempervivums* require lime. Correvon says that the *S. tectorum* group does like lime. They do not like starved conditions, as commonly supposed, but thrive well in good soil but perfect drainage. A stony soil in full sun is ideal. The blooming of these plants is not greatly desired because it causes the death of the rosette.

PROPAGATION. Most sorts produce offsets which is the readiest source of increase. The European seed catalogs list seeds of many sorts. The German books advise leaf cuttings, but in removing the leaves it is well to cut to the base where an eye is found on the stem.

SPIRAEA—(Includes *Aruncus*, *Astilbe*, *Filipendula*, *Ulmaria*)

(spy-ree'-a. From *speira*, wreathed; the branches used as garlands.)

There is a large group of herbaceous plants of great beauty known as *Spiraeas* but which should be properly known by other names. They are characterized by having attractive, airy plumes of flowers; in fact, every garden has a place for a few of them. See *Astilbe*, page 99; *Aruncus*, page 90; *Filipendula*, page 153, and *Ulmaria*, page 153.

STATICE (*Armeria*)—Thrift, (Sea-pink) (Cliffrose)

(stat'i-see. From *statizo*, to stop; referring to the astringency of some species.)

The Thrift is a low growing plant which derives a common name of Sea-pink from the fact that it grows along the seashore and is pink in color. There are other colors, such as red, deep rosy pink, lilac and white. It grows in dense, low clumps with numerous, narrow, grass-like leaves, all clustered at the base, from which spring the flowers on stiff, wiry stems from 6 inches to 18 inches high. *S. armeria* is generally cataloged as *Armeria maritima* and is the common form. Rosalie Thrift, or *Armeria armeria* var. *lauchiana* has crimson flowers. They flower more or less continuously from early Spring until late in Fall.

S. alpina and *S. caespitosa* are both very dwarf species for the rockery; both produce rose-colored flowers, although *caespitosa* may also be lilac.

S. pseudo-armeria (*A. cephalotes*) is a tall sort, 18 inches, with bright pink flowers in heads 2 inches across.

For the Everlasting perennials commonly called Statice, see *Limonium*, page 189.



Meadowrue or *Thalictrum*, altogether charming for border or base



Statice armeria or Thrift; a good edging plant with rose and white flowers

USES. The Thrifts are invaluable when planted in clumps or for edging. They are also used for pot plants and in the rock garden.

CULTURE. They need a free, well-drained, sandy loam and leaf-soil. Best wintered in frames as they are often tender to the cold.

PROPAGATION. The more choice varieties are increased by dividing the roots and a good sized plant will furnish hundreds of small divisions. They produce seed but do not grow readily from seeds. If the seeds are planted in the Fall, they should be kept in the coldframe and removed to the open ground just as soon as it is in a workable condition. This will enable the plants to get well established before the hot weather arrives.

STOKESIA—(Stokes-aster), (Cornflower-aster)

(stohk'-si-a. Named after Dr. Stokes, an English botanist.)

Generally we do not think of a China-aster resembling a Cornflower, but it is true that the *Stokesia* resembles them both. *Stokesia laevis* (*cyanea*) is a low plant, seldom above 1½ feet tall, and with light lavender-blue, white, purple and rose-colored flowers produced from early July to October.

USES. They are especially recommended for the front of a border and may be used for cut flowers.

CULTURE. Generally it is stated that this plant is sensitive to cold, heavy soils and seems to thrive with drought-resisting subjects, well drained in Winter. It prefers full sun.

PROPAGATION. When raised from seed it blooms the first year.

THALICTRUM—Meadowrue, (Feathered-columbine)

(tha-lik'-trum. From *thallo*, to grow green, refers to the bright green shoots.)

These graceful, feathery flowers add an airy appearance to the border of perennials. The leaves are fine and resemble the foliage of the Columbine. Some sorts are natives of our woods, but the cultivated species are superior in the size of their plumy heads.

SPECIES. *Thalictrum aquilegifolium*. (Columbine Meadowrue). Pink flowers, June, 3 feet tall. There is a white- and a purple-flowered variety which is useful for combining with the pink typical sort.

T. minus adiantifolium. Low M. (Maidenhair M.) Yellow flowers, June to July, 1 foot.

T. dipterocarpum. Yunnan M. Rose-purple, yellow stamens. August to September, 5 feet. Except for this sort, the others bear no showy colored sepals.

T. glaucum. Dusty M. Golden yellow, June to July, 4 feet. Bluish-gray leaves.

T. dioicum. Early M. Native, purplish and greenish, April to May, 1 to 2 feet.

T. polygonum (cornuti). White flowers, 8 feet. Frequently grown for abundant foliage.

USES. The Meadowrues are excellent for the border and, being a refined plant, may be planted in the intimate spots of the dooryard. The cut sprays are exquisite for bouquets. *T. dipterocarpum* is a sort of recent introduction with distinct flowers having petals. *T. minus* is good for rockeries and the foliage is excellent cut for bouquets.

CULTURE. The plants do well in well-drained shaded places. *T. dipterocarpum* is best planted in the sun and in a soil which is loose, peaty, or to which leafmold has been added. Being a trifle tender, this choice sort is best wintered in coldframes in the colder climates.

PROPAGATION. The plants are readily divided, but if seed is obtainable, it may be sown.

TROLLIUS—Globeflower

(trol'-li-us. From the German *trol*, round; in reference to the globular flowers.)

The Globeflower is a glorified Buttercup; its leaves and flowers resemble the Buttercup in form but are larger. What one would usually call petals are really showy sepals and the true petals are narrow like stamens in appearance. Improved varieties have orange, gold, orange-red, and lemon-colored flowers, often double. The commonest species is *Trollius europaeus*, but while all the cataloged species resemble each other in form, the seasons and the colors of the flowers differ. They grow about 2 feet tall and bloom throughout the Summer starting in late April.

In the Caucasian Globeflower, *T. caucasicus*, the flowers open flat and are not globular like the other species.

In *T. ledebouri* the 10 or 12 petals are long and prominent. The plants are 3 feet tall.



Globeflower or Trollius, like a giant Buttercup of golden yellow

Named varieties sometimes seen in catalogs are: Bessie Walker, orange; Canary Bird, pale yellow; Earliest of All, orange yellow; Empire Day, orange; Golden Sun, golden yellow; Excelsior, orange, double; Lemon Queen, pale lemon; and Orange Princess, brilliant orange.

USES. The Globeflower flourishes both in sun and shade, and is especially at home in borders in which the soil is a trifle too damp for other plants. Furthermore, a little shade is appreciated. They are showy border plants, their neat habit and compact flowers commending them to all. We must add that they grow nicely in the ordinary garden soil, even though it be away from the waterside.

PROPAGATION. Except where named varieties are concerned, these can be raised from seed sown as soon as ripe. The old seed is rather slow to germinate and some claim that the seed needs to be frozen. The plants are likewise tardy in flowering. If the seed is Winter stored, it should be stratified. Young plants are slow to develop into good sized clumps. Old plants, and also all the choice named sorts, are easily divided into pieces with one or two crowns. Some advise division shortly after blooming has finished.

VERONICA—Speedwell

(vur-on/-i-ca. See legend below.)

When Christ was laboring beneath the heavy cross, He faltered, and a maiden, St. Veronica, rushed forward to wipe the perspiration from His brow. The impress of His face was found upon her napkin. Literally, the name is derived from *vera*, true, and *ikonika*, face; signifying the true face of Jesus. Such is the story of St. Veronica, and because the markings of some species of Veronica resemble a face, this flower was named after St. Veronica. It is a pretty story and one we recall when looking at this flower. It will be



The most showy sort of Veronica is *V. maritima*, with its tall spikes of violet flowers

remembered that the common name is derived from the name of the ship, Speedwell, which started toward America at the time of the Mayflower sailing. It was forced to return to Europe because it proved unseaworthy.

Veronicas are excellent border and rock garden subjects. The diversity of the species renders them of use in many spots.

SPECIES. *Veronica maritima*, the so-called *V. longifolia subsessilis*. Clump or Japanese Speedwell. This is, perhaps, one of the most attractive of all blue-violet flowers for the border. The long spikes of bloom are 2 feet tall and are produced through July to late September.

V. spicata grows 1½ feet tall and bears either blue, pink, or white flowers in June.

V. incana, the Woolly S., seldom grows over a foot tall and besides having amethyst-blue flowers, it has gray foliage. It blooms in July and August.

V. virginica, Culvers-physic, is a tall sort, 3 to 5 feet high, producing clusters of white spikes of bloom throughout July. Often called *Leptandra virginica*.

V. teucrium rupestris, the Rock S., and *V. repens*, the Creeping S., are dwarf, trailing sorts, carpeting the soil with green and covered with blue flowers in May and June.

V. spuria (amethystina) is densely hairy, grows 2 feet tall. The leaves are linear, 1 inch long. The flowers are blue, in panicked racemes.

V. gentinoides (glabra) grows 2 feet tall. The leaves are oblong-lanceolate, 3 inches or more long, often slightly toothed. The flowers pale blue, veined deeper and produced in loose racemes. It blooms in mid April.

V. pectinata, the Comb S., is very gray, hairy, with deeply toothed leaves. The flowers are blue or rose. The plants are prostrate.

Besides these species, there are a number of others listed in catalogs, but the names are quite generally mixed and oftentimes the same plants are called by different names.

USES. As already stated, the Veronics are superb for the perennial border and the rock garden. *V. teucrium rupestris* and *V. repens* are also good ground covers for dry banks or graves. The taller sorts are good for cutting, especially *V. maritima*.

CULTURE. Veronics are of easy culture; they usually prefer moist soil. Although they grow in poor soil, some fertilizer in the form of bonemeal will increase the size of the spikes. They generally prefer full sun, perhaps with the exception of *V. virginica* and *V. repens*.

PROPAGATION. The plants are easily divided. Seeds may be sown and some sorts root when the branches touch the soil. *V. maritima* is generally propagated from cuttings, inasmuch as it varies greatly from seed.

VIOLA—(Violets and Tufted Pansies)

(vy-oh'-la. The Latin name, derived from *via*, way; literally the flower that grows along the way.)

Modest Violets are true favorites of all. The wild sorts are eagerly sought in Springtime and the exotic ones bloom until late Fall, almost amid the early snows. The most popular species for gardens is *Viola cornuta*, the Tufted Pansy, or Horned Violet, in its various varieties. G. Wermig is the best known purple sort; Papileo is a variety which is



One of the most attractive Violas is known as Jersey Gem

lavender and white. T. A. Weston has produced the sensational Jersey Gem, a superior blooming sort, perfectly hardy and growing in the sun. Both in its profusion of blooms and length of season it is superior to G. Wermig. This one variety has done a great deal to popularize the whole group of Violas. Mauve Queen and Maggie Mott are good mauve varieties. Besides these, there is a group of hardy Violas, resembling Pansies, but hardy and perennial.

Among the species of true Violets, *Viola pedata*, the Birdfoot Violet, is a popular sort growing abundantly in the soils which lack lime through the East and Middle West. It requires some skill and a knowledge of its natural needs to bring this sort into cultivation. The foliage is deeply cut and unlike that of most wild Violets. The typical form is purple, but its rarer and choicer variety, *bicolor*, has a combination of rich purple on the upper half of the flower, with light lavender below.

Correvois has produced a lovely *Viola floraiensis*, which blooms with him throughout the whole year unless covered with snow. Its flowers are purple, with a yellow lower petal pencilled purple.

The wild sorts: *V. cucullata* is the common purple Violet; *V. canadensis*, the Canada Violet, is white touched with light purple on the reverse of the petals and is a leafy stem sort; *V. pubescens*, the



The gay Tufted Pansies are splendid for edging the Spring border

Downy Yellow Violet, has hairy, leafy stems and yellow flowers; *V. rostrata*, the Longspur Violet, bears light blue flowers with darker centers and long, curving spurs; the common Sweet White Violet (*Viola blanda*) has heart-shaped leaves; *V. palmata* is a cutleaf sort with flowers resembling the common Violet.

The Sweet Violet (*Viola odorata*) has held the admiration of the world for years. When protected they are hardy, but generally it is best to place them in coldframes covered with glass. In such situations they will produce flowers all through the late Fall and Winter. It is a great pleasure to pick these Violets when all else is bare of bloom.

USES. Wild Violets may be used for naturalizing in the informal areas of the garden, even beneath shrubs. The forms of the Tufted Pansies, because of their long season of bloom, are excellent for edging plants. As rock garden subjects they are unexcelled.

CULTURE. Generally the soil for most Violets is not difficult to satisfy. The wild sorts grow in a wide range of conditions but most

Violets are associated with shaded places, although the Tufted Pansies prefer the sun and a rich soil. *V. pedata* wants an acid soil.

PROPAGATION. *Viola cornuta* is generally propagated from cuttings placed in the coldframes in late Summer. From seed these named sorts do not breed absolutely true, although the variation is often charming. Wild Violets are propagated more often by division. The Sweet Violet is raised from cuttings made in Spring.

YUCCA—(Adams-needle-and-thread) Spanish-bayonet

(yuk'-ka. A Peruvian name.)

The stiff, broad, sword-shaped leaves of *Yucca filamentosa* are familiar to all. In Midsummer the flower stalks, rising to a height of 6 feet, are also familiar. The flowers are white and pendulous. It is the personal opinion of the writer that, except when in bloom, they are stiff, coarse and undeserving of a place in a small garden. It must be admitted, however, that they are remarkably drought-resistant, and will thrive where trees rob the soil so that more dainty plants cannot exist. This species is wild from South Carolina to Florida.

Y. flaccida has leaves which are less rigid and curving, the threads are straighter and it is hardier than *Y. filamentosa*.

Y. glauca, the Soapweed, or in New Mexico called the Beargrass, bears an underground trunk from which clumps arise. The leaves are narrow, stiff, gray-green with a white margin. The flowers are white or purple-tinted. Soap is made from the roots.

Y. baccata, though not adapted to the colder regions, grows freely as a native in southern Colorado to New Mexico and Nevada. The leaves are thick. The flower stalks are only 3 feet tall and the flowers are large, 3 inches long.

Y. harrimaniae, a native of Utah, Colorado and New Mexico, is the smallest of the Yuccas, producing tufts 4 to 8 inches in diameter with needlelike leaves edged with white filaments. It succeeds in all soils, from adobe to sand.

Y. brevifolia, the Joshua-tree, is commonly seen throughout the semi-arid regions of California. These plants grow 30 feet tall but with leaves less than 10 inches long.

USES. When used at all they are best planted as specimens or among shrubbery. They are especially good in sandy loam and well drained soil.

CULTURE. They will exist for a generation and transplant with difficulty when the plants become old as the roots go deeply.

PROPAGATION. Seedlings will bloom when four to five years old. As the plants sucker freely, this furnishes a ready means of propagation.

TABULAR LIST OF PERENNIALS

INCLUDING MANY HERBACEOUS PERENNIALS NOT DISCUSSED ELSEWHERE IN THE BOOK

Name	Height in inches	Season	Color	Remarks
<i>Acaena microphylla</i> (New Zealand Bur).....	6	May	Red spines	Ground cover. Dry or moist. Spiny
<i>Acanthus mollis</i> (Bearsbrech) ..	36	July-Aug.	Lilac, rose	Deeply toothed leaves. Sun. Drainage
<i>Achillea clavennae</i>	6-12	July-Sept.	White	Thrives in sand. Rockery
<i>filipendulina</i> (Fernleaf Yarrow)	36 +	June-Aug.	Yellow	Ferny foliage
<i>millefolium</i> (Yarrow).....	18	June +	White, rose	Adverse situations
<i>ptarmica</i> (Sneezewort).....	24	July +	White	Cut flower. Profuse. Varieties numerous
<i>tomentosa</i> (Woolly Y.).....	12	June	Yellow	Rockery. Woolly leaves
<i>Aconitum anthora</i> (Pyrenees Monkshood).....	18	July	Yellow	
<i>autumnale</i> (Autumn M.).....				See <i>A. fischeri</i>
<i>fischeri</i> (Azure M.).....	36	Sept. +	Pale blue	Shady places
<i>lycoctonum</i> (Wolfbane).....	36	July	Pale yellow	
<i>napellus</i> (Aconite).....	24	June	Blue, white	
<i>pyrenaicum</i>				See <i>A. anthora</i>
<i>uncinatum</i>	24-50	June	Blue	Tendency to climb
<i>wilsoni</i> (Violet M.).....	48	Sept.	Blue	
<i>Accrus calamus</i> (Sweetflag).....	24	June		Aquatic. Aromatic root. Often variegated
<i>Actaea alba</i> (White Baneberry) ..	24	April	White	Berries white. Shade. Wild
<i>rubra</i> (Red B.).....	24	April	White	Berries red
<i>Adenophora polanini</i> (Ladybell) ..	18	Aug.	Blue	Rockery. A bellflower.
<i>Adlumia fungosa</i> (Climbing Fumitory).....	Cl.	July	Flesh	Rare
<i>Adonis amurensis</i> (Amur Adonis) ..	12	April	Yellow	Biennial. Dainty leaves and flowers
<i>vernalis</i> (Spring A.).....	8-12	April	Yellow	(Impatient of being moved. Fine leaves. Buttercup-like)
<i>Aegopodium podagraria</i> (Goutweed).....	12	June	White	White variegated leaves. Ground cover
<i>Aethionema coridifolia</i> (Lebanon Stonecress).....	9	April	Pink	Dry sunny slopes
<i>grandiflorum</i> (Persian S.).....	12	May	Pink	
<i>pulchellum</i>	Tr.	April	Pink	More diffuse and trailing than first one
<i>Agrostemma</i>				See <i>Lychnis</i>
<i>Ajuga genevensis</i> (Geneva Bugle) ..	6	May	Blue	Shade. Carpet
<i>reptans</i> (Carpet B.).....	6	May	Purple	Purpleleaf variety
<i>Alsine</i>				See <i>Stellaria</i>
<i>Alstroemeria aurantiaca</i>	36	July +	Yellow, red	Protected place. Showy
<i>Allthea rosea</i> (Hollyhock).....	72	June	Various	Old, popular
<i>Alyssum alpestre</i>				See <i>A. rostratum</i>
<i>argenteum</i> (Silver A.).....	15	June-Aug.	Yellow	Silvery leaves
<i>montanum</i>	15	May	Yellow	Gray leaves
<i>rostratum</i> (Yellowhead A.).....	24	June +	Yellow	
<i>saxatile</i> (Goldentuft).....	18	May	Yellow	
<i>citrinum</i>	12	May	Citron	Sheets of bloom
<i>compactum</i> (Dwarf G.).....	8-10	May	Yellow	Rarer color
<i>spinosum</i>	15	May	White	Most popular Alyssum
<i>Amsonia tabernaemontana</i>	24	May	Pale blue	A shrub
<i>Anaphalis margaritacea</i> (Pearl Everlasting).....	12	June	White	Shade. Dainty border
				Gray leaves. Dry spots

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Anchusa barrelieri</i> (Early Bugloss)	24	May	Dark blue	Biennial
<i>capensis</i>	12	Aug.-Sept.	Blue	
<i>italica</i> (Dropmore B.).....	36+	June+	Deep blue	Dwarf } Shade tolerant
<i>myosotidiflora</i> (Siberian B.)....	12	May	Blue	
<i>Androsace languinosa</i>	Tr.	Aug.	Pink	Silver leaves. Rare
<i>sarmentosa</i>	4	July	Rose	Leaves in rosette
<i>Anemone canadensis</i> (Meadow A.)	12+	May	White	Wild
<i>hupensis</i>	12	Aug.+	Rosy	Resembles <i>A. japonica</i>
<i>japonica</i> (Japanese A.).....	36	Sept.+	Various	Popular Fall flower
<i>nuttalliana</i> (American Pasque- flower).....	8	April	Blue-purple	Rockery
<i>pennsylvanica</i>				See <i>A. canadensis</i>
<i>pulsatilla</i> (Eur. P.).....	9	April	Blue-purple	Rockery
<i>Anemone thalictroides</i> (Rue- anemone).....	6	April	White	Shade
<i>Anthemis tinctoria</i> (Yellow Camo- mile).....	18	June+	Yellow	Poor soil
<i>Anthericum liliago</i> (St. Bernard- lily).....	15	May	White	
<i>Aquilegia californica hybrida</i>				See <i>A. formosa truncata</i>
<i>canadensis</i> (Amer. Columbine)....	18+	April	Red and yellow	Common wild. Self sows
<i>chrysantha</i> (Golden C.).....	24+	May	Yellow	Longspur
<i>caerulea</i> (Colorado C.).....	18+	April	Blue and white	Graceful. Good color. Long spur
<i>skinneri</i> (Mexican C.).....	12+	April	Yellow and red	
<i>vulgaris</i> (European C.).....	18+	April	Violet	Short spurs
<i>nivea</i> (Munstead C.).....	18	April	White	Superior white
<i>Arabis alba</i> (Wallcross).....	12	April	White	Carpet of bloom
<i>alpina</i> (Alpine Rockcross).....	12	April	White	
<i>aubrietoides</i>	12	April	Pink	More tender
<i>Arenaria balearica</i>	Tr.	April	White	Tolerates shade
<i>montana</i> (Mt. Sandwort).....	Tr.	April	White	Dry, sunny place. Rockery
<i>verna</i>	Tr.	April	White	For stepping stones
<i>Arisaema triphyllum</i> (Jack-in-the- pulpit).....	18	May	Purple and green	Shade. Wild
<i>Armeria</i>				See <i>Statice</i>
<i>Arnebia echinoides</i> (Prophet- flower).....	9	May	Yellow	Rockery. Partial shade. Rare
<i>Arnica montana</i> (Mt. Arnica)....	12	July	Yellow	Rockery. Partial shade. Drainage
<i>Artemisia abrotanum</i> (Southern- wood).....	24	Aug.	Yellow	Common in old gardens
<i>absinthium</i> (Common Worm- wood).....	24	Aug.	White, yellow	
<i>albula</i> (Silver King).....	36	Summer	White	An everlasting
<i>lactiflora</i>	48+	Aug.	White	Fragrant. Cut flower
<i>montana</i> (Piedmont W.).....	36	Sept.	White	White foliage for cutting
<i>purshiana</i> (Cudweed W.).....	18	Aug.	Whitish	White leaves
<i>stelleriana</i> (Beech W.).....	18	Aug.	Yellow	Finely cut white foliage
<i>Aruncus sylvestris</i> (Goatsbeard) ..	60	June-July	White	Tallest herbaceous Spirea
<i>Arundinaria auricoma</i> (Bamboo)....	36		Leaves green and yellow	
<i>fortunei</i>	18		Leaves green and white	} Trifle tender for north
<i>japonica</i>	96+		Leaves green	
<i>metake</i>				See <i>japonica</i>
<i>simoni</i>	108+		Leaves green	
<i>Arundo donax</i> (Giant Reed).....	240		Leaves green	Tallest grass. Sometimes variegated
<i>Asarum canadense</i> (Wildginger)....	5	May	Maroon	Shade. Wild
<i>Asclepias curassavica</i>	36	Summer	Scarlet	For South
<i>incarnata</i> (Swamp Milkweed)....	36	July	Pink	Moist places
<i>tuberosa</i> (Butterflyweed).....	24	July+	Orange	Dry, sunny places

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Asperula odorata</i> (Woodruff)....	12	July	White	Partial shade
<i>Asphodeline lutea</i> (Jacobs-rod) ..	36	June	Yellow	Leafy stems. Onion appear- ing leaves
<i>Aster</i>	12-60	June, Sept.	Various	See page 94.
<i>Astilbe davidi</i> (David A.).....	60+	June, July	Rosy	Parent of <i>A. arendsi</i> hy- brids
<i>grandis</i> (Great A.).....	60+	June, July	White	
<i>Astrantia major</i> (Masterwort)...	12-24	May	Pink	Partial shade near running water
<i>Aubrieta deltoidea</i> (Purple Rock- cress).....	6	April		Rockery
<i>Bambusa palmata</i>	48		Purplish	Hardy Bamboo
<i>Baptisia australis</i> (Wild-indigo) ..	24	June	Leaves green	Border. Wild garden
<i>tinctoria</i> (Yellow W.).....	24	June, July	Dark blue	
<i>Belamcanda chinensis</i> (Black- berry-lily).....	36	Aug.	Yellow	Black seeds resembling Blackberry
<i>Bellis perennis</i> (English Daisy) ..	4	April	Orange	Edging
<i>Bellium minus</i> (Persian Daisy)	3	May+	Pink, white	Rockery. Tiny pink Daisy
<i>Bocconia cordata</i> (Plumepoppy) ..	72-96	July	Rose	Among or back of shrubs
<i>Boltonia asteroides</i> (White B.)...	60-72	Sept.	Creamy	} Like Wild Aster, grayish
<i>latisquama</i> (Violet B.).....	48-72	Sept.	White	} leaves
<i>nana</i> (Dwarf Pinkray B.)...	24	Sept.	Pink	Best of all
<i>Bruckenthalia spiculifolia</i> (Spike- heath).....	6+	June	Pink	Heath-like
<i>Calimeris incisa</i>	24	July, Aug.	Purple, white	Border. Daisy
<i>Callirhoe involucrata</i> (Poppy-mal- low).....	Tr.	Summer	Rosy crimson	Mallow-like. Dry places
<i>Calluna crista</i>	12	July	Pink	} Acid soil
<i>vulgaris</i> (Heather).....	12	July	Purple	
<i>Caltha palustris</i> (Marshmarigold).	12	April	Yellow	Swamp places
<i>Campanula alliariaefolia</i> (Spurred Bellflower).....	12-24	June-July	White	
<i>barbata</i>	9	June	Blue	Rock gardens
<i>caespitosa</i>	6	May	Blue	Rock gardens
<i>carpatia</i> (Carpathian B.).....	8	June-Oct.	Blue, white	Edging. Rockery
<i>garganica</i>	Tr.	June	Light blue	Rockery
<i>glomerata</i> (Danesblood).....	18	July+	Violet	Flowers in dense heads
<i>isophylla</i>	Tr.	late Winter	Blue or white	Pot plant
<i>lactiflora</i> (Milky B.).....	36	June-Sept.	Blue, white	
<i>latifolia</i> (Great B.).....	24	June	Purple	
<i>macrantha</i> (Royal B.).....	36	May	Purple	
<i>medium</i> (Canterbury-bells)...	18-24	June	Blue, white,	
<i>calycanthema</i> (Cup-and-Sau- cer B.).....	18-24	June	rose Blue, white, rose	Biennial
<i>muralis</i>				See <i>C. portenschlagiana</i>
<i>persicifolia</i> (Peachleaf B.)....	24	June-July	Blue, white	Cut flower
<i>portenschlagiana</i> (Dalmatian B.).....	4	June	Blue	Rockery
<i>pulloides</i>	6	June-July	Purple	Rockery
<i>punctata</i> (Spotted B.).....	18	June	White	Border
Marion Gehring.....	36	June+	Lavender	Spreads by underground stems
<i>pusilla</i>	6	June+	White, blue	Rockery
<i>pyramidalis</i> (Chimney B.)....	72	Aug.	Blue, white	Border. Background
<i>rapunculoides</i>	36	July	Violet	Long bells
<i>rapunculus</i>	36	July	Lilac	Biennial
<i>rotundifolia</i> (Harebell).....	12	June+	Blue	Rockery. Wild
<i>hostii</i>	18	June+	Blue	Larger flowers and stouter stems
<i>trachelium</i> (Coventry-bells)...	36	July	Purple	Biennial
<i>Cardamine bulbosa</i> (Bittercress) ..	8	May	White	Wild
<i>pratensis</i> (Cuckooflower).....	12	April	Pinkish	
<i>Caryopteris incana</i> (Bluebeard) ..	36	Sept.	Lavender	Often called Blue-spirea

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Cassia marilandica</i> (Wild Senna) .	60	July	Yellow	Background
<i>Catananche caerulea</i> (Cupids-dart)	18	Sept.	Blue	Everlasting. Dry places
<i>Caulophyllum thalictroides</i> (Blue Cohosh)	24	April	Yellow	Blueberries. Shade. Wild
<i>Centaurea babylonica</i> (Syrian Cen- taurea)	36	June-Aug.	Yellow	Silver leaves
<i>candidissima</i>				See <i>C. cineraria</i>
<i>cineraria</i> (Dusty-miller)	18 +	Aug.	Purple	Leaves white. Edging
<i>dealbata</i> (Persian C.)	18	July-Sept.	Rose	Ground cover
<i>gymnocarpa</i> (Velvet C.)	18	June	Pale purple	White leaves. Edging or ground cover
<i>macrocephala</i> (Globe C.)	48	July	Yellow	Border
<i>montana</i> (Mountain-bluet)	24	June +	Violet	Cut. Border
<i>Centranthus ruber</i> (Jupitersbeard)	18	June-Aug.	Crimson, white	Rockery. Border
<i>Cephalaria alpina</i> (Yellow C.)	72	June-Aug.	Sulphur	Flowers like Scabiosa
<i>Cerastium arvense</i> (Starry C.)	6	June-July	White	Ground cover
<i>biebersteini</i> (Taurus C.)	8	June	White	Edging. White leaves
<i>tomentosum</i> (Snow-in-summer)	6	June	White	Ground cover. White leaves
<i>Ceratostigma plumbaginoides</i> (Lar- pente Plumbago)	6	Sept. +	Blue	Ground cover. Edging
<i>Cheiranthus allioni</i> (Siberian Wallflower)	12	June +	Orange	Biennial. Rockery
<i>cheiri</i> (Wallflower)	24	April	Maroon, yellow, low, red	Popular in cool climates
<i>Chelidonium majus</i> (Celandine)	24	May	Yellow	Poppy-like
<i>Cheloneglabra</i> (White Turtlehead)	24	Aug.	White	Moist places
<i>lyoni</i> (Pink T.)	24	Aug.	Purplish pink	Semi-shade
<i>Chimaphila maculata</i> (Striped Pipsissewa)	6	June	Pinkish	Spotted leaves
<i>umbellata</i> (Pipsissewa)	6	June	White	Wild. Acid soil
<i>Chrysanthemum arcticum</i> (Arctic Daisy)	6	Sept.	White	Dark, good foliage
<i>coccineum</i> (Painted Lady)	24	June	Various	Cut flower. Border
<i>leucanthemum</i> (Oxeye D.)	12	June	White	Wild Daisy
<i>maximum</i> (Shasta Daisy)	24	June-Sept.	White	Cut flower
<i>nipponicum</i> (Nippon O. D.)	24	Sept.	White	Border
<i>uliginosum</i> (Giant D.)	60	Sept.	White	Background
<i>Cimicifuga dahurica</i> (Dahurian Bugbane)	48	July	White	Shade. Wild places
<i>foetida simplex</i> (Kamchatka B.)	36	Sept.	White	
<i>racemosa</i> (Cohosh B.)	48 +	July	White	
<i>Claytonia virginica</i> (Springbeauty)	4	Mar.	Pink	Wild. Dainty. Carpet
<i>Clematis fremontii</i>	18	June	Violet	Bellshaped flowers
<i>heracleaefolia</i> (Tube Clematis)	36	Aug.	Lavender	Border
<i> davidiana</i> (Fragrant T. C.)				
<i>integrifolia</i>	24	June-Oct.	Blue	Border
<i>recta</i> (Ground C.)	36	June-July	White	Resembles <i>C. paniculata</i>
<i>Clintonia borealis</i> (Bluebeard)	10	May	White	Wild
<i>Commelina coelestis</i> (Dayflower)	18	May +	Blue	A weed, but beautiful
<i>Convallaria majalis</i> (Lily-of-the- valley)	12	May	White	Shade
<i>Coptis trifolia</i> (Goldthread)	4	May	White	Moist. Shade. Wild
<i>Coreopsis grandiflora</i> (Tickseed)	36	May	Yellow	Cut flower
<i>rosea</i> (Rose C.)	12	Aug. +	Pink	Rockery
<i>verticillata</i> (Threadleaf C.)	18	July +	Yellow	Fine foliage
<i>Cornus canadensis</i> (Bunchberry)	6	May	White	Shade. Berries red
<i>Coronilla varia</i> (Crownvetch)	Tr.	June-Aug.	Pink	For dry banks. Pea-like
<i>Corydalis cheilanthifolia</i>	10	June	Yellow	Rockery. Related to
<i>nobilis</i> . (Siberian C.)	24	May	Yellow	Dicentra
<i>sempervirens</i>	12	July	Pink	Annual
<i>Crucianella stylosa</i> (Crosswort)	6	June +	Pink	Leaves whorled. Skunk- like odor
<i>Cypripedium acaule</i> (Pink Lady- slipper)	6	May	Rose	Moist places

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Cypripedium</i> —Continued				
<i>spectabile</i> (Showy L.).....	12	June	Yellow	
<i>pubescens</i> (Common Yellow L. S.).....	12	June	Yellow	
<i>Dalibarda repens</i>	8	June-Aug.	White	Cool, moist places
<i>Daphne cneorum</i> (Garlandflower).	12	Apr. + Oct.	Pink	Evergreen
<i>Delphinium belladonna</i> (Larkspur)	24	June-Sept.	Light blue	Cut flower
<i>bellamosum</i>	24	June-Sept.	Deep blue	
<i>cardinale</i> (Cardinal L.).....	36	Aug.	Scarlet	Rather tender
<i>grandiflorum</i> (Siberian L.)....	18	July-Sept.	Blue, white	Fine foliage
<i>hybrids</i>	60	June-Sept.	Various	Named varieties
<i>nudicaule</i> (Orange L.).....	18	July	Orange	Rather tender
<i>zaili</i> (Yellow L.).....	12-24	June-July	Yellow	Tuberous
<i>Dianthus allwoodi</i>	12-18	June +	Various	Trifle tender in North
<i>arenarius</i>	6	May-June	White	Dry places
<i>barbatus</i> (Sweet-william).....	18	June	Various	Ever popular
<i>caesi</i> (Cheddar Pink).....	8-12	June +	Rose	Rockery. Border
<i>carthusianorum</i> (Carthusian P.)	12	June +	Crimson	Rockery
<i>chinensis</i> (Chinese P.).....	12	July	Various	Biennial. Beds
<i>cruentus</i> (Blood P.).....	4-5	July	Scarlet	Border. Rockery
<i>deltoides</i> (Maiden P.).....	6-9	June	Rose	Rockery
<i>glacialis</i> (Ice P.).....	3-8	June	Rose	Rockery
<i>latifolius</i> (Double Cluster P.)..	12	July-Oct.	Crimson	Bedding
<i>plumarius</i> (Grass P.).....	12	June	Various	Edging
<i>superbus</i> (Lilac P.).....	24	Aug.	Pink	Rockery
<i>Dicentra canadensis</i> (Squirrel- corn).....	8	April	White	Shade. Wild
<i>ecucularia</i> (Dutchmans- breches).....	10	April	White	Shade. Wild
<i>eximia</i> (Fringed Bleedingheart)	18	May-Sept.	Rose	Rockery. Edging
<i>formosa</i> (Western B.).....	12	May +	Light rose	Rockery. Edging
<i>spectabilis</i> (Bleedingheart).....	36	May	Pink	Shade. Border
<i>Didamnus albus</i> (Gasplant)....	36	May	Rose, white	Don't move often
<i>Digitalis ambigua</i> (Yellow Fox- glove).....	36	June	Yellow	Perennial
<i>ferruginea</i> (Rusty F.).....	48	July	Brown	Biennial
<i>lanata</i> (Grecian F.).....	24 +	June	Gray and white	Perennial
<i>lutea</i> (Straw F.).....	24	July	Yellow	Dull color
<i>purpurea</i> (Common F.).....	48	June	Purple	Ever popular
<i>gloxinioides</i>	48	June	Purple	Improved <i>D. purpurea</i>
<i>monstrosa</i>	36	June	Purple	Large flower at tip of spike
<i>Dodecatheon meadia</i> (Shooting- star).....	15	April	Lilac	Wild. Shade
<i>Doronicum austriacum</i> (Leopard- bane).....	24	May-June	Yellow	} Earliest yellow Daisies
<i>caucasicum</i>	24	May-June	Yellow	
<i>plantaginum</i>	18	June	Yellow	
<i>Draba aizoides</i> (Whitlowgrass)...	2	March	Yellow	Alpine. Rosettes. Rare
<i>Dracocephalum ruyschianum</i> (Dragonhead).....	24	June, July	Purple	Border. Mintlike
<i>Dryas octopetala</i>	12	July	White	Plumy seed heads. Rockery
<i>Duchesnea indica</i> (Mock-straw- berry).....	6	May +	Yellow	Red berries. Basket plant
<i>Echeveria agavoides</i>	Tr.	Aug.	Yellow-red	Tender
<i>gibbiflora</i>	24	Aug.	Red	Tender
<i>secunda glauca</i>	Tr.	Aug.	Red	Tender
<i>Echinacea purpurea</i> (Purple Cone- flower).....	36	Sept.	Rosy purple	Popular
<i>Echinops humilis</i> (Low Globe- thistle).....	12	July	Blue	} Globular heads. Spiny plants. Drainage
<i>ritro</i> (Steel G.).....	36	July	Blue	
<i>sphaerocephalus</i> (Common G.)...	60	July +	White	
<i>Epigaea repens</i> (Trailing-arbutus)	Tr.	April	Pink	Difficult to transplant

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Epilobium angustifolium</i> (Bloom- ing-sally).....	48	July	Magenta	Called Fireweed
<i>Epimedium alpinum</i> (Alpine E.)..	9	May	Crimson	} Rockery. Partial shade
<i>macranthum</i> (Longspur E.)...	15	May	White	
<i>musschianum</i> (Japanese E.)..	12	April	White	
<i>niveum</i> (Snowy E.).....	12	May	White	
<i>Eremurus bungei</i> (Desertcandle)..	72+	June	Deep yellow	} Protection. Wonderful for specimens Smaller flowers than others
<i>elwesi</i>	72+	June	Bright rose	
<i>himalaicus</i>	72+	June	White	
<i>robustus</i> (Giant D.).....	96	June	Flesh	
<i>Erica carnea</i> (Spring Heath)...	10	June+	Rose	} Acid soil. Moist atmos- phere
<i>cinerea</i> (Twisted H.).....	6-18	June+	Purple	
<i>strida</i> (Corsican H.).....	1-4	July	Purple	
<i>Erigeron multiradiatus</i> (Flea- bane).....	6	July	Pink	Purple Daisies
<i>speciosus</i>	18	July+	Violet	
<i>Erinus alpinus</i> (Liver-balsam) ..	6	May	Purple	Shade. Perfect drainage
<i>Erodium absinthiodes</i>	8	July	White	Gray leaves
<i>Erodium manescavi</i> (Heronbill) ..	18	June-Aug.	Crimson	Dry, sunny rockery
<i>Eryngium alpinum</i> (Bluetop Eryngo).....	24	July+	Amethyst	} Prickly foliage, teasle-like heads
<i>amethystinum</i> (Amethyst E.)..	24	July+	Amethyst	
<i>aquaticum</i> (Button-snakeroot)..	12 to 72	July	Greenish	Foliage like Yucca
<i>giganteum</i> (Stout E.).....	36	July+	Amethyst	
<i>maritimum</i> (Seaholly).....	12	July-Sept.	Pale blue	} Gray foliage
<i>oliverianum</i>	36	July-Aug.	Blue	
<i>planum</i>	24+	July-Aug.	Steel blue	
<i>Erysimum pulchellum</i> (Blister- cress).....	6	May+	Yellow	Dry rockery. Sun
<i>Erythronium americanum</i> (Trout- lily).....	10	April	Yellow, lilac	Spotted leaves. Shade
<i>Eupatorium ageratoides</i>				See <i>E. urticacifolium</i>
<i>coelestinum</i> (Mistflower).....	18	Sept.+	Blue	Popular in Fall. Border
<i>perfoliatum</i> (Boneset).....	36	July	White	Wild garden
<i>purpureum</i> (Joe-pye-weed)...	72	Aug.	Purple	Wet places
<i>urticacifolium</i> (Thoroughwort)..	36	Aug.	White	Shade. Common wild
<i>Euphorbia corollata</i> (Flowering Spurge).....	18	July	White	Cut flower. Dry places
<i>cyparissias</i> (Cypress S.).....	12	June	Yellow	Fine foliage
<i>epithymoides</i> (Cushion S.).....	24	May	Yellow	Broader foliage
<i>polychroma</i>				See above species
<i>Festuca glauca</i> (Blue Fescue)....	8	A gray grass
<i>Filipendula camtschatica</i>	72-96	June	White	
<i>hexapetala</i> (Dropwort).....	12-24	June-July	White	Edging. Rockery
<i>palmata</i> (Meadowsweet).....	24-36	July	Pink, white	Border. Plumy heads
<i>Gaillardia aristata</i> (Blanketflower)	12-15	May+	Red, orange	Ever popular
<i>Galax aphylla</i>	6	July	White	Rockery. Acid soil
<i>Galega officinalis</i> (Goatsrue)...	36	June+	Purplish blue	Locust-like leaves
<i>Galium boreale</i> (Bedstraw).....	12	June	White	Leaves in whorls
<i>Gaultheria procumbens</i> (Winter- green).....	6	July	White	Edible leaves. Acid soil.
<i>Gentiana acaulis</i> (Stemless Gen- tian).....	4	Mar.	Blue and yel.	Red berries
<i>andrewsi</i> (Closed G.).....	18	Aug.	Purple blue	Half shade. Moist place
<i>crinita</i> (Fringed G.).....	12	Oct.	Blue	Quite uncommon wild flow- er
<i>Geranium armenum</i> (Armenian Cranesbill).....	24	May-July	Purple	Rare wild flower
<i>fremonti</i> (Rocky Mountain C.)..	12	June	Rose purple	Border
<i>grandiflorum</i> (Lilac G.).....	12	June	Violet	Quite evergreen
<i>ibericum</i> (Iberian G.).....	12+	June	Blue, white	Border
<i>maculatum</i> (Spotted G.).....	9-18	July	Purple	Border
<i>pratense</i> (Meadow C.).....	36	June	Purple	Wild
<i>robertianum</i> (Herb Robert)....	12	June-Oct.	Rosy-purple	

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Geranium</i> —Continued				
<i>sanguineum</i> (Bloodred G.).....	12	June-Aug.	Rosy-purple	Rockery
<i>lancastriense</i>	6	June-Aug.	Pink	Lighter color and more dwarf than type
<i>Geum chiloense</i> (Avens).....	24	July	Scarlet	Proper name for <i>G. coccineum</i> and <i>atrosanguineum</i>
<i>montanum heldreichii</i>	12	May +	Orange	
<i>Gillenia trifoliata</i> (Bowmansroot).....	36	July +	Rose	Three-parted leaves
<i>Globularia trichosantha</i> (Globe-daisy).....	6-8	July	Blue	Partial shade. Well drained
<i>Gunnera manicata</i> (Great G.)..	48			Crown of leaves. Often 25 ft. across
<i>Gypsophila acutifolia</i> (Green G.)..	24-36	July	White	Border
<i>cerastoides</i> (Mouse-ear G.).....	4	May	White and pink	Rockery
<i>paniculata</i> (Babysbreath).....	36	June-July	White	Cutting. Border
<i>repens</i> (Creeping G.).....	4-8	June-Aug.	Blush	Rockery
<i>monstrosa</i>	12	June-Aug.	Pale rose	Larger flowers
<i>Helenium autumnale</i> (Sneezeweed)	36	Sept.	Yellow	Many maroon and gold var.
<i>hoopesii</i> (Orange S.).....	24	May	Orange	Smooth leaves
<i>Helianthemum album</i>	Tr.	June-Sept.	White	Shrubby. Evergreen.
<i>chamaecistus</i>	Tr.	June-Sept.	Yellow, various	Rockery. Dry banks
<i>Helianthus angustifolius</i> (Swamp Sunflower).....	36	Sept.	Yellow	Background clumps
<i>decapetalus</i> (Thinleaf S.).....	72	Aug.	Sulphur	Cut flower
<i>multiflorus</i>	48	Aug.	Golden	Double form. Cut flower
<i>giganteus</i> (Giant S.).....	72	Sept.	Yellow	Weedy
<i>maximiliani</i> (Maximilian S.)..	84	Oct.	Gold	Cut flower
<i>mollis</i> (Ashy S.).....	36 +	Aug. +	Orange	Hairy leaves
<i>orgyalis</i>	72 +	Oct.	Yellow	Long, graceful foliage
<i>rigidus</i>				See <i>H. scaberrimus</i>
<i>scaberrimus</i> (Prairie S.).....	48	Sept. +	Gold	Semi-double usually
<i>tuberosus</i> (Jerusalem-artichoke)	60	Sept.	Yellow	Edible tubers
<i>Heliopsis helianthoides</i>	40	July	Deep gold	
<i>pitcheriana</i> (Pitcher H.).....	36	July +	Orange	Border
<i>scabra Excelsa</i>	36	July +	Orange	Fully double
<i>Helleborus niger</i> (Christmas-rose).....	6-18	Jan.-Mch.	White, purple tinted	Flowers in snow
<i>Helonias bullata</i> (Swamp-pink)..<	12	April	Pink	Wet places
<i>Hemerocallis aurantiaca</i> (Orange Daylily).....	36	June	Orange	
<i>dumortieri</i>	18	June	Bright orange	Popular for border, water-side. Semi-shade
<i>flava</i> (Lemon D.).....	24	June	Canary	
<i>fulva</i> (Tawny D.).....	36	July	Bronze	
<i>kwanso</i>	48	July	Orange	Semi-double
<i>middendorffii</i> (Amur D.).....	24	June	Gold	Narrow, grasslike leaves
<i>thunbergii</i> (Japanese D.).....	48	July	Canary	Late
<i>Hepatica acutiloba</i>	4-6	April	Bluish pink	Wild
<i>triloba</i>	4-6	April	Bluish pink	Wild
<i>Heraclium villosum</i> (Cow-parsnip)	144	June	White	Partial shade. Damp places
<i>Hesperis matronalis</i> (Rocket)....	36	June +	Purple	Sweet
<i>Heuchera americana</i> (Alumroot)..<	12	May	White	Wild
<i>brizoides</i> (Pinkbells).....	24	May +	Purplish	Rockery
<i>sanguinea</i> (Coralbells).....	18	July	Crimson	Rockery
<i>Hibiscus militaris</i> (Soldier Rose-mallow).....	48-72	June	Flesh	Lance-shaped leaves
<i>moscheutos</i> (Rosemallow).....	60	June	Various	Moist soil. Tolerant
<i>Hieracium aurantiacum</i> (Hawkweed).....	18	June	Orange	Weed
<i>Hosta caerulea</i> (Blue Plantainlily)	18	May	Blue	
<i>fortunei</i> (Fortune P.).....	12-24	July	Lilac	Popular for shade
<i>lancifolia</i> (Lanceleaf P.).....	12-24	Aug.	Lilac	Often variegated
<i>plantaginea</i> (White P.).....	12-18	Aug.	White	Common. Popular. Shade
<i>sieboldiana</i> (Siebold P.).....	18 +	Aug.	Pale blue	Metallic blue leaves
<i>undulata</i> (Wavyleaf P.).....	12	Aug.	Lilac	Leaves generally variegated

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Houstonia caerulea</i> (Bluets).....	6	June	Blue	Rockery. Moisture
<i>Hypericum calycinum</i>	12-18	Aug.	Yellow	
<i>moserianum</i>	24	July-Aug.	Yellow	Large yellow flowers with numerous stamens.
<i>patulum</i>				
<i>henryi</i>	36	July-Aug.	Yellow	Really shrubs
<i>Hypoxis hirsula</i> (Goldeye-grass)...	6	June	Yellow	Wild. Dainty
<i>Iberis gibraltaria</i> (Candytuft)...	12-24	April +	White, rosy tinted	Rockery
<i>sempervirens</i> (Evergreen C.)...	9-12	March +	White	Most popular. Rockery. Border
<i>tenoreana</i> (Tenore C.).....	6	April	White, becom- ing purple	
<i>Incarvillea delavayi</i>	18-24	May-Oct.	Rosy purple	Biennial Protect
<i>grandiflora</i>	18	May-Oct.	Crimson	
<i>Inula ensifolia</i> (Swordleaf I.).....	8-12	July-Sept.	Yellow	Flowers 5 in. diam. Borders
<i>glandulosa grandiflora</i>	18	June	Orange-yellow	
<i>Inula helenium</i> (Elecampane)....	12-18	June-July	Yellow	Large leaves Border
<i>royleana</i> (Blackbud I.).....	24	Sept.	Golden	
<i>Iris chamaeiris</i> (Dwarf).....	4-6	April	Various	Edging. Rockery
<i>cristata</i> (Crested I.).....	4-6	May	Lilac	
<i>foetidissima</i> (Gladwin I.).....	18	June	Various	Almost evergreen Named varieties numerous
<i>germanica</i> (German I.).....	24	June	Purple	
<i>interregna</i> (Intermediate I.)...	18	May	Various	Moist when in bloom
<i>kaempferi</i> (Japanese I.).....	36 +	June-July	White to purple	
<i>longipetala</i> (Coast I.).....	24	May	White, purple	Wet places See <i>I. chamaeiris</i>
<i>ochroleuca</i> (Yellowband I.).....	12	May	Blue	
<i>pseudacorus</i> (Yellowflag).....	48	May-June	Yellow	Acid soil Wet places
<i>pumila</i> (Dwarf I.).....				
<i>sibirica</i> (Siberian I.).....	48	June	Violet, white	Wild. Curious seed pod lids Not as popular as next
<i>tectorum</i> (Roof I.).....	18	May	Blue	
<i>verna</i> (Vernal I.).....	12	April	Blue	Showy. Popular.
<i>versicolor</i> (Blueflag).....	36	May	Violet	
<i>Jeffersonia diphylla</i> (Twinleaf)...	12	May	White	Trailing Rather straggling. Cut flowers
<i>Kniphofia rufa</i> (Early Torchlily)...	18	June	Yellow	
<i>uvaria</i> (Torchlily).....	36	Sept.	Orange	Tender Trifle tender
<i>pfizeriana</i> (Bonfire T.).....	36	Sept.	Orange scarlet	
<i>Lamium maculatum</i> (Deadnettle)	10	July	Purple	Ground cover. Acid soil Great favorite
<i>Lathyrus latifolius</i> (Perennial Pea)	72	July	White, pink, crimson	
<i>Lavandula spica</i> (Spike Lavender)	24	Aug.	Lavender	Typical prairie plant
<i>vera</i> (True Lavender).....	12-24	July	Blue	
<i>Leiophyllum buxifolium</i> (Sand- myrtle).....	12	May-June	White	Bloom from top of spike downwards. Trying color. Narrow spikes
<i>Leontopodium alpinum</i> (Edelweiss)	9	June +	White	
<i>sibiricum</i> (Siberian E.).....	8	June +	White	Large leaves. Wet places
<i>Lepachys pinnata</i>	48	Aug.	Yellow	
<i>Liatris graminifolia</i> (Grassleaf Gayfeather).....	24	Aug.	Rose purple	Everlastings. Dainty flower sprays
<i>pycnostachya</i> (Cattail G.).....	48	Aug. +	Rose purple	
<i>scariosa</i>	24 +	Aug.	Purple	Rockery
<i>spicata</i> (Spike G.).....	24	Aug.	Purple	
<i>Ligularia diorurnum</i>	48	July	Yellow	Rockery
<i>Limonium gmelini</i> (Statice)....				
<i>latifolium</i> (Bigleaf S.).....	20	Aug.	Lavender	Rockery
<i>laticurum</i> (Tartarian S.).....				
<i>Linaria alpina</i> (Alpine Toadflax)	Tr.	Summer	Violet, orange	Weed
<i>cymbalaria</i> (Kenilworth-ivy)...	Tr.		Purple	
<i>macedonica</i> (Macedonian L.)...	36	June	Yellow	Border. Gray leaves
<i>Linum alpinum</i> (Flax).....	Tr.	May	Gray blue	
<i>flavum</i> (Golden F.).....	12	June-Aug.	Gold	Rockery
<i>narbonnense</i> (Narbonne F.)....	24	May	Blue	
<i>perenne</i> (Perennial F.).....	18	June-Aug.	Blue, white	Border. Evergreen
<i>Lithospermum fruticosum</i> (Grom- well).....	3	April +	Blue	
<i>prostratum</i>				See <i>L. fruticosum</i>

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Lobelia cardinalis</i> (Cardinalflower)	24	Aug.-Oct.	Scarlet	Moist places
<i>syphilitica</i> (Blue L.)	36	July-Sept.	Blue	Wild. Popular
<i>Lunaria annua</i> (Honesty)	18+	June	Purple	Attractive seed pods
<i>Lupinus perennis</i> (Sundial L.)	12+	July	Blue	Wild. Acid soil
<i>polyphyllus</i> (Washington L.)	36	June	Various	Popular. Very desirable
<i>Lychnis alpina</i> (Arctic Campion)	6	April	Pink	Tiny form of <i>L. viscaria</i>
<i>arkwrightii</i>	24	June	Scarlet	
<i>chalconica</i> (Maltese Cross)	24	July+	Scarlet	Popular. Prolific
<i>coelirosa</i> (Rose-of-heaven)	18.	June, July	Rose	
<i>coronaria</i> (Rose C.)	18	June, July	Rosy purple	Cut often as <i>Agrostemma</i>
<i>haageana</i> (Haage C.)	18	July+	Orange scarlet	Brilliant color
<i>flosculi</i> (Ragged-robin)	15	May+	Red	Fringed petals
<i>flosjovis</i> (Flower-of-jove)	18	June	Rose	Border
<i>viscaria</i> (Clammy C.)	12	June	Magenta	Viscid area under leaves
<i>splendens</i> (Double Rosepink C.)	12	June	Rosy purple	Showy
<i>Lysimachia clethroides</i> (Clethra Loosestrife)	24	July+	White	Border. Excellent
<i>nummularia</i> (Moneywort)	Tr.	June+	Yellow	Good under trees
<i>punctata</i> (Spotted L.)	24	July-Aug.	Yellow	Wild. Long spikes. Wet places
<i>vulgaris</i> (Golden L.)	24	July-Aug.	Yellow	Spikes. Wet places
<i>Lythrum salicaria</i> (Loosestrife)	48	July-Sept.	Rose purple	Many vars. Moist soil
<i>virgatum</i> (Wand L.)	36	July	Rose purple	
<i>Malva moschata</i> (Muskmallow)	24	June-July	Rose, white	Wild
<i>Mazus japonicus</i>	Tr.	June	Blue	Rockery
<i>Meconopsis baileyi</i>	36	July	Blue	Hairy
<i>cambrica</i> (Welsh-poppy)	12	June	Yellow	Rare. Desirable
<i>integrifolia</i> (Chinese-poppy)	36	July	Yellow	Rather tender
<i>pratensis</i>	36	Aug.	Blue	Annual
<i>quintuplinervia</i> (Harebell-poppy)	18	July	Lavender	
<i>wallichii</i> (Satinpoppy)	36	July	Blue	Cool, moist, half shade
<i>Melissa officinalis</i> (Balm)	12+	Sept.	White	Aromatic
<i>Mentha requienii</i> (Requien Mint)	6	July	Purple	Wall crevices
<i>Menyanthes trifoliata</i> (Bogbean)	18	June	White	Bog garden
<i>Mertensia ciliata</i> (Mountain Bluebells)	24	May	Blue	Does not die to soil
<i>lanceolata</i> (Prairie Bluebells)	12	May	Blue	Dry soil
<i>sibirica</i> (Siberian Bluebells)	60	July	Blue	Broad leaves
<i>virginica</i> (Virginia Bluebells)	18	May	Blue	Very useful wild plant
<i>Mianthemum canadense</i> (Wild-lily-of-the-valley)	6	April	White	Wild. Shade
<i>Mitchella repens</i> (Partridgeberry)	Tr.	June	White	Twin berries. Evergreen
<i>Mitella diphylla</i> (Bishopscap)	12	April	White	Wild
<i>Monarda didyma</i> (Beebalm)	36	July	Scarlet	Popular
<i>fistulosa</i> (Wildbergamot)	36	June	Purple	Moist places
<i>Myosotis alpestris</i> (Alpine Forget-me-not)	6+	June	Blue	} Always admired
<i>dissitiflora</i> (Swiss F.)	9	May	Blue	
<i>scorpioides palustris</i> (True F.)	9	June	Deep blue	
<i>Nepeta glechoma</i> (Ground-ivy)	Tr.	April	Blue	Weed
<i>musini</i>	12	May-Sept.	Lavender blue	Rockery. Bedding
<i>Nierembergia rivularis</i> (Whitecup)	3	June+	Creamy white	Rockery
<i>Oenothera caespitosa</i> (Tufted E.)	4	May	White	Leaves like Dandelion
<i>fruticulosa</i> (Sundrops)	18	June-July	Yellow	
<i>missouriensis</i> (Ozark S.)	12	June-Aug.	Yellow	Very large flowers and seed pods
<i>perennis</i> (pumila)	6	July	Yellow	Ground cover
<i>speciosa</i>	18	June	White	Weedy but good
<i>Onopordon bracteatum</i> (Scotch Thistle)	48-60	July	Purplish	Showy
<i>tauricum</i> (Taurus T.)	72	July	Purple	Silver leaves. Showy

TABULAR LIST OF PERENNIALS

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TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Opuntia rafinesqui</i> (Indianfig)...	12	June	Yellow	Rockery
<i>vulgaris</i> (Indianfig).....	12	June	Yellow	Rockery
<i>Pachysandra terminalis</i> (Japanese P.).....	6	May	White	Ideal groundcover
<i>Paeonia</i> (Peony).....	18-48	June	Various	See page 214
<i>Papaver alpinum</i> (Alpine Poppy).....	8-10	June	Yellow	Rockery
<i>nudicaule</i> (Iceland P.).....	12	June+	Yellow, orange, white	Rockery. Border
<i>orientale</i> (Oriental P.).....	36	June	Various	
<i>pilosum</i> (Olympic P.).....	24	June-Oct.	Orange	Small but profuse
<i>Paradisea liliastrum</i> (St. Bruno- lily).....	18	May	White	See <i>Anthericum</i>
<i>Parnassia palustris</i> (Grass-of- parnassus).....	8	May	White	Wild. Boggy places
<i>Pentstemon barbatus</i>	36	June-July	Scarlet	Popular. Long tubular flowers
<i>gloxinioides</i> (Gloxinia P.).....	24	June-Oct.	Purple	Trifle tender
<i>grandiflorus</i> (Shell-leaf P.).....	24	July	Purple	Border
<i>hirsutus</i> (Eastern P.).....	18	July+	Purplish	Wild
<i>laevigatus</i> (Smooth P.).....	24	June	Rosy lilac	Border
<i>digitalis</i> (Foxglove P.).....	36	June-July	Purple	Border
<i>torreyi</i> (Torrey P.).....	36	June-July	Scarlet	Little tender
<i>Phlox adsurgens</i>	16	June	Rose, white	
<i>amoena</i> (Amoena P.).....				See <i>P. procumbens</i>
<i>arendsi</i> (Arends P.).....	24+	May+	Various	Border
<i>divaricata</i> (Blue P.).....	12+	May	Lavender	Wild but splendid in cul- tivation
<i>paniculata</i> (Garden P.).....	24+	July+	Various	Many varieties, see page 220
<i>pilosa</i> (Downy P.).....	12	June	Pink	Rockery
<i>procumbens</i>	6	June	Rose	Better than <i>P. subulata</i>
<i>stolonifera</i> (Creeping P.).....	8	June	Pink	Rockery
<i>subulata</i> (Moss Phlox).....	6	May	Rose purple	See vars. page 221
<i>suffruticosa</i> (glaberrima) (Smooth P.).....	36	June	Various	Smooth leaves, earlier than standard types of garden Phlox
<i>Physalis alkekengi</i> (Strawberry Groundcherry).....	24	July	White	Orange-scarlet fruits
<i>francheti</i> (Lantern G.).....	24	July	White	Coral red fruits
<i>Physostegia virginiana</i> (False- dragonhead).....	36	July-Sept.	Pink	Cut flower
<i>Vivid</i>	18	July-Oct.	Brighter pink	Border
<i>Platycodon grandiflorum</i> (Balloon- flower).....	24	May-Oct.	Violet, white	Border
<i>mariesi</i>	12	May-Oct.	Violet, white	Superior, does not need stakes
<i>Plumbago larpenae</i>				See <i>Ceratostigma</i>
<i>Podophyllum peltatum</i> (May- apple).....	12	May	White	Shade. Wild
<i>Polemonium caeruleum</i> (Greek- valerian).....	18+	June	Blue, white	Border. Flat flowers in spikes
<i>humile</i> (Dwarf P.).....	6	Aug.	Pale blue	Rockery
<i>reptans</i> (Creeping P.).....	6	May	Blue	Wild
<i>richardsoni</i>				See <i>P. humile</i>
<i>Polygonatum biflorum</i> (Solomon- seal).....	12	June	Greenish	
<i>commutatum</i> (Great S.).....	30	May	White	} Moist places. Wild flowers
<i>multiflorum</i> (European S.).....	24	May	White	
<i>Polygonum affine</i> (Fleeceflower).....	18	Sept.	Rose	
<i>compactum</i>	72	Aug.	White	} Weedy. Rampant. Wild garden
<i>cuspidatum</i> (Japanese F.).....	72	Aug.	White	
<i>sachalinense</i> (Sacaline).....	72	Sept.	Greenish	
<i>sieboldi</i>				See <i>cuspidatum</i>
<i>Potentilla atrosanguinea</i> (Cinque- foil).....	18	June	Crimson	Rockery

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Potentilla</i> —Continued				
<i>formosa</i>				See <i>P. nepalensis</i> .
<i>nepalensis</i> (Nepal C.).....	24	June-Aug.	Rose	Rockery. Border.
<i>rupestris</i> (Cliff C.).....	18		White	Rockery.
<i>tridentata</i> (Wineleaf C.).....	6	June	White	Ground cover. Rockery.
<i>Primula acaulis</i> (Eng. Primrose).....	6		Various	
<i>auricula</i>	12	June	Various	Gray, ear-shaped leaves
<i>cortusoides</i> (Bigleaf P.).....	12	May	Red, purple	
<i>denticulata</i> (Himalayan P.).....	10	May	Violet	Rockery
<i>cachemiriana</i> (Kashmir P.).....	12	May	Lilac	Yellow-mealy underside of leaves
<i>elatior</i> (Oxlip P.).....	9	April	Various	
<i>farinosa</i> (Birdseye P.).....	6	June	Pale purple	Mealy-white foliage
<i>frondosa</i>	4	May, June	Rosy lilac	Mealy foliage
<i>japonica</i> (Japanese P.).....	24	June	White to crimson	
<i>pulverulenta</i> (Silverdust P.).....	24	June	Rosy purple	Moist soil. Cool places
<i>veris</i> (Cowslip P.).....	9	April-May	Yellow	
<i>vulgaris</i>				See <i>P. acaulis</i>
<i>Prunella grandiflora</i> (Selfheal).....	6	Aug.	Purple	Rockery. Border
<i>Pulmonaria angustifolia</i> (Cowslip Lungwort).....	12	April+	Blue	} Tolerate shade. Any soil
<i>officinalis</i> (Common L.).....	12	April	Pink	
<i>saccharata</i> (Bethlehem L.).....	12	May	Pink to blue	
<i>Pyrethrum roseum</i>				See <i>Chrysanthemum coccineum</i>
<i>Pyrola elliptica</i> (Shinleaf).....	4	May	White	Ground cover. Evergreen. Wild.
<i>Ramondia pyrenaica</i> (Rosette-mullein).....	6	May	Violet	Rockery. Hairy leaves. Good drainage
<i>Ranunculus aconitifolius</i> (Aconite Buttercup).....	12	May	White	Rockery
<i>acris</i> (Tall Buttercup).....	24	May	Gold	Common. Wild
<i>flore pleno</i>	24	May	Gold	Double
<i>repens flore pleno</i> (Double Creeping B.).....	6	May-June	Gold	Shiny leaves
<i>Rheum palmatum tanguticum</i> (Tangutian Rhubarb).....	96	June, Sept.	Greenish	Large leaves
<i>Romneya coulteri</i> (Canyon-poppy).....	48	June+	White	Large poppy
<i>Rosmarinus officinalis</i> (Rosemary).....	24	April	Blue	Protect
<i>Rudbeckia hirta</i> (Black-eyed-susan).....	24	Aug.+	Orange	Biennial. Wild
<i>laciniata</i> (Golden Glow).....	60	July-Sept.	Orange	Cut flower. Double
<i>maxima</i> (Great Coneflower).....	60	June-Sept.	Yellow	Gray leaves. Unusual
<i>nitida</i> (Autumn Sun).....	60	Aug.-Oct.	Primrose	
<i>purpurea</i>				See <i>Echinacea</i>
<i>speciosa (neumannii)</i> (Showy C.).....	36	July-Oct.	Golden	Border
<i>submentosa</i> (Sweet C.).....	48+	July+	Yellow	Border
<i>Ruta graveolens</i> (Rue).....	18	July	Yellow	Gray leaves. Herb
<i>Sagina subulata</i> (Pearlwort).....	6	July+	White	Rockery-evergreen. Shade
<i>Salvia azurea grandiflora</i> (Azure Sage).....	48	Aug.+	Light blue	Trifly leggy
<i>argentea</i> (Silver S.).....	24-48	June	Rosy white	
<i>farinacea</i> (Mealycup S.).....	36	Aug.+	Light blue	Mealy stems and calyx. Half-hardy
<i>greggi</i> (Autumn S.).....	36+	Sept.	Red	Rather tender
<i>nemorosa</i> (Violet S.).....	24	Sept.	Purple	Border. Bushy
<i>officinalis</i> (Garden S.).....	18	Aug.	Purple	Gray, wrinkled leaves. Herb
<i>patens</i> (Gentian S.).....	12-24	Sept.	Deep blue	Half-hardy
<i>pitcheri</i> (Pitcher S.).....	48	Aug.+	Deep blue	Resembles <i>S. azurea</i> but deep blue
<i>pratensis</i> (Meadow S.).....	24	June-Aug.	Blue	Border
<i>sclarea</i> (Clary).....	24-36	Aug.	Bluish white	Biennial. Large, grayish leaves

TABULAR LIST OF PERENNIALS—Continued

Name	Height in inches	Season	Color	Remarks
<i>Salvia</i> —Continued				
<i>turkestanica</i>	36	July	White, pale pink	Half hardy
<i>uliginosa</i> (Bog S.).....	36	Aug. +	Pale blue	Similar to <i>S. azurea</i>
<i>virgata</i> (Oriental S.).....				See <i>S. nemorosa</i>
<i>Sanguinaria canadensis</i> (Blood- root).....	8	April	White	Wild. Rockery
<i>Santolina chamaecyparissus</i> (Lav- ender-cotton).....	18	July	Yellow	Silver, evergreen leaves
<i>Saponaria ocymoides</i> (Rock Soap- wort).....	4	June	Pink	Rockery
<i>officinalis</i> fl. pl. (Bouncing-bet)	24	July	Pink	Weedy
<i>Sarracenia purpurea</i> (Pitcher- plant).....	8	June	Purple	Bog
<i>Satureia alpina</i> (Alpine Savory).....	6	July +	Purple	Cataloged as <i>Calamintha</i>
<i>Saxifraga aizoon</i> (Aizoon S.).....	12	June	Cream	
<i>caespitosa</i>	5	June	White	
<i>cordifolia</i> (Heartleaf S.).....	12	April	Purple	
<i>colyledon</i>	48	June	White	
<i>crassifolia</i> (Leather S.).....	12	April	Purple	
<i>decipiens</i>	3	May	Pink	For rockeries. Some with large leaves, others re- sembling Sedums
<i>ligulata</i> (Rajah S.).....	12	May	White	
<i>longifolia</i>	12 +	June	White	
<i>megasea</i> (Rockfoil).....	15			
<i>oppositifolia</i>	2	May	Purple, rose	
<i>pellata</i> (Umbrella S.).....	24 +	May	Pink	Damp, shady places
<i>sarmentosa</i> (Strawberry S.).....	Tr.	Spring	White	Pot plant
<i>umbrosa</i> (London-pride S.).....	12	May	Flesh	Half-hardy
<i>virginensis</i> (Virginia S.).....	8	May	White	Native. Moist rocks
<i>Sibiosa caucasica</i>	24	June-Sept.	White, lavender	Cut flower. Border
<i>graminifolia</i>	18	June +	Violet	Silver leaves
<i>japonica</i> (Japanese S.).....	24	June-Sept.	Lavender	
<i>Scutellaria alpina lupulina</i> (Skull- cap).....	9	Aug.	Yellow	Rockery. Border
<i>baicalensis</i> (Baikal S.).....	12	July	Blue	
<i>Sedum acre</i> (Goldmoss).....	4	June	Yellow	Most common. Leaves taste peppery
<i>aizoon</i> (Aizoon Stonecrop).....	12	Aug.	Yellow	Erect stems
<i>album</i> (White S.).....	3	June	White	
<i>anglicum</i> (English S.).....	1-2	July	Pink	
<i>dasyphyllum</i> (Leafy S.).....	3	June	Pink	
<i>ewersi</i> (Ewers S.).....	4	June	Violet	Broad leaves
<i>kamtschaticum</i> (Orange S.).....	12	June	Orange	Broad leaves, erect stems
<i>lydium</i> (Lydian S.).....	2	June	White	Tiny. Rockery
<i>glaucum</i> (Mealymat).....	4	June	White	Gray leaves
<i>maximowiczii</i> (Amur S.).....	12	July	Yellow	Border. Rockery. Wide leaves
<i>maximum</i> (Great S.).....	12 +		White	Broad leaves
<i>oppositifolium</i> (Two-row S.).....	6	Aug.	White	
<i>pilosum</i>	2-3		Rose	
<i>pulchellum</i> (Texas S.).....	6	June	Purplish, rose	Forking flower stems
<i>reflexum</i> (Jenny S.).....	12	July	Yellow	Narrow leaves. Wide leaves
<i>sarmentosum</i> (Stringy S.).....	Tr.	June	Yellow	Rampant weed
<i>sexangulare</i> (Hexagon S.).....	2-3		Gold	Tiny leaves
<i>sieboldii</i> (Siebold S.).....	6-8	Aug.	Rose	Leaves in whorls. Very attractive
<i>spectabile</i> (Showy S.).....	18 +	Sept. +	Rose, crimson	Wide leaves
<i>spurium</i>				See <i>S. stoloniferum</i>
<i>stahli</i> (Stahl S.).....	4	Aug.	Yellow	Purplish leaves
<i>stoloniferum</i> (Running S.).....	4	June	Pink	Broad leaves
<i>telephoides</i> (Wild Liveforever).....	12	Aug.	Purple	Erect stems. Wide leaves
<i>telephium</i> (Liveforever).....	12-18	Aug.	Purple	
<i>ternatum</i> (Mountain S.).....	6	July	White	Wide leaves
<i>triphylum</i>	12	July	Purple	Old fashioned

TABULAR LIST OF PERENNIALS—*Continued*

Name	Height in inches	Season	Color	Remarks
<i>Sempervivum arachnoideum</i> (Spiderweb Houseleek).....	6-12	July	Pale purple	Cobwebby covering on young leaves
<i>soboliferum</i> (Hen-and-chickens).....	6	July	Yellow	} Rockery. Rosettes of thick leaves
<i>tectorum</i> (Roof H.).....	6-12	July	Purple	
<i>Shortia galacifolia</i> (Oconee-bells).....	9-12	May	White	Acid soil
<i>Sidalcea candida</i> (Prairie-mallow).....	36	July	White	Popular border
<i>malvaeflora</i> (Checkerbloom) ..	12-60		Rose pink	
<i>listeri</i> (Satin C.).....	12-60		Rose pink	Fringed petals
<i>Silene acaulis</i> (Moss Campion).....	3	May+	Pink	Tiny leaves. Rockery
<i>alpestris</i> (Alpine Catchfly).....	4-6	May+	White	Rockery
<i>asterias grandiflora</i> (Crimson Globe C.).....	36		Scarlet	
<i>pennsylvanica</i> (Peatpink).....	12	June	Red	Light soil. Wild. Often called Firepink
<i>quadrifida</i>	3	June+	White	Rockery
<i>saxifraga</i> (Saxifrage C.).....	3	July	Flesh	Rockery
<i>schafta</i> (Schafta C.).....	8	June-Sept.	Rose	Rockery
<i>Silphium laciniatum</i> (Compass-plant).....	72	July-Sept.	Yellow	Typical prairie plant
<i>perfoliatum</i> (Cup Rosinweed) ..	48-60	July-Aug.	Yellow	Coarse
<i>Sisyrinchium angustifolium</i> (Blue-eyed-grass).....	12	June	Blue	Dainty. Wild
<i>Smilacina racemosa</i> (False Solomonseal).....	12	May	Yellow	Native. Shady places
<i>Soldonella alpina</i> (Moonwort)...	3	June	Violet	Alpine. Peaty soil. Rare
<i>Solidago alpestris</i> (Alpine Golden-rod).....	4-18	Aug.	Yellow	} Popular wild flowers worthy of cultivation.
<i>altissima</i> (Tall G.).....	—72	Aug.	Yellow	
<i>caesia</i> (Wreath G.).....	24	Sept.	Yellow	} Popular wild flowers worthy of cultivation.
<i>canadensis</i> (Canada G.).....	36	Aug.	Yellow	
<i>rigida</i> (Stiff G.).....	36	Sept.	Yellow	} Stand drought.
<i>virgaurea</i> (Goldwings).....	60	Sept.	Bright yellow	
<i>Stachys betonica</i>				See <i>S. grandiflora</i>
<i>grandiflora</i> (Betony).....	12-36	June	Purple	Borders
<i>lanata</i> (Woolly B.).....	12	July	Purple	White silky leaves
<i>Statice armeria</i> (Thrift).....	6	June+	Pink	} For plants usually listed as Statice see Limonium.
<i>laucheana</i> (Rosalie T.).....	9	June+	Rose	
<i>montana</i> (alpina).....	8		Pale pink	} Here belong the Armerias of catalogs
<i>plantaginea</i> (dianthoides).....	18	June	Pink	
<i>pseudoarmeria</i>	9-12	June+	Crimson	
<i>Stenanthium robustum</i> (Feather-fleece).....	24-36	July	White	Native
<i>Stokesia cyanea</i>				See <i>S. laevis</i>
<i>laevis</i> (Stokes-aster).....	12-24	Aug.	Lavender, white	Cut flower. Border
<i>Symphyandra hofmanni</i>	12-24	July	White	Biennial. Resembles <i>Campanula</i>
<i>Tanacetum vulgare</i> (Tansy).....	48	June	Yellow	Old medicinal plant
<i>Teucrium chamaedrys</i> (German-der).....	12+	July	Rosy purple	Rockery. Border
<i>Thalictrum aquilegifolium</i> (Columbine Meadowrue).....	12-36	May+	White, purple	} Dainty foliage; plummy flowers. Splendid border plants
<i>diptercarpum</i> (Yunnan M.).....	48	Aug.+	Lilac	
<i>glaucum</i> (Dusty M.).....	24+	June+	Yellow	
<i>minus</i> (Low M.).....	12	June+	Yellow	
<i>polygamum</i> (Tall M.).....	36	May	White	
<i>Thermopsis caroliniana</i>	48	June-July	Yellow	Tall pea-like plants
<i>Thymus serpyllum</i> (Mother-of-thyme).....	2	June-Sept.	Violet, rose, white	Excellent ground cover. Stepping stones. Rockery
<i>citriodora</i> (Lemon Thyme).....	4	June	White	Lemon-scented leaves
<i>vulgaris</i> (Thyme).....	12	July	Rosy white	Shrubby. Upright
<i>Tiarella cordifolia</i> (Foamflower).....	6	April-May	White	Wild. Dainty
<i>Tradescantia virginiana</i> (Spider-wort).....	24	May-Aug.	Blue, white	Wild. Moist places

TABULAR LIST OF PERENNIALS

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TABULAR LIST OF PERENNIALS—Concluded

Name	Height in inches	Season	Color	Remarks
<i>Trientalis americana</i> (Starflower)	8	May	White	Wild. Diminutive
<i>Trillium cernuum</i> (Nodding T.)..		May	White	
<i>erectum</i> (Purple T.).....	12	May	Purple	Favorite wild flower. Shady woods. Picking blooms destroys pos- sibility of flowers an- other year
<i>grandiflorum</i> (Snow T.).....	18	May	White	
<i>nivale</i> (Dwarf T.).....	8	May	White	
<i>sessile</i> (Toad T.).....	8	May	Purplish red	
<i>undulatum</i> (Painted T.).....	9	May	White, pink center	
<i>Trollius europaeus</i> (Globoseflower)..	24	April-June	Yellow	Very popular
<i>ledebouri</i>	36	June	Golden	Flat flower
<i>Tunica saxifraga</i> (Tunicflower)...	6	July-Oct.	White, bluish	Rockery. Edging
<i>Tussilago farfara</i> (Coltsfoot).....	8	April	Yellow	Ground cover. Weedy
<i>Uvularia grandiflora</i> (Merrybells)	18	April	Yellow	Wild shade
<i>perfoliata</i> (Wood M.).....	12	April	Yellow	
<i>sessilifolia</i> (Little M.).....	18	April	Yellow	
<i>Valeriana officinalis</i> (Valerian)...	36-60	June	Blush white	Fragrant. Common border
<i>Veratrum viride</i> (False-hellebore)	24	June-July	Greenish	Wild. Broad leaves, deeply veined
<i>Verbascum olympicum</i> (Olympic Mullein).....	60-72	June	Yellow	Biennial. Like an improved wild Mullein
<i>phoeniceum</i> (Purple Mullein)...	18-48	May-Aug.	Various	Attractive. Uncommon
<i>Vernonia noveboracensis</i> (Iron- weed).....	48-60	Sept.	Purple	Weed in Midwest
<i>Veronica gentianoides</i> (Gentian Speedwell).....	12	June	Light blue	Rockery
<i>incana</i> (Woolly S.).....	12	July-Aug.	Rosy purple	Rockery
<i>maritima</i> (Clump S.).....	18	Aug.	Violet	
<i>pectinata</i> (Comb S.).....	6	June	Rose	Rockery
<i>repens</i> (Creeping S.).....	4	June	Blue	Rockery. Shade
<i>spicata</i> (Spike S.).....	12+	June+	Purple	Border
<i>spuria</i> (Bastard S.).....	18	June+	Violet	Border
<i>teucrium rupestris</i> (Rock S.)...	4	June	Violet	Rockery. Wall, stepping stones
<i>virginica</i> (Culvers-physic).....	48-60	July	White	Border
<i>Vinca minor</i> (Periwinkle).....	3	May	Violet	Ground cover
<i>Viola blanda</i> (Sweet White Violet)	3	May	White	Tiny. Scented. Common wild
<i>canadensis</i> (Canada V.).....	3-12	May	White	Reverse of petals purple
<i>cornuta</i> (Tufted Pansy).....	6-10	April-Oct.	Various	Unexcelled garden sort
<i>cucullata</i> (Blue March V.).....	6-10	May	Violet	Commonest wild
<i>odorata</i> (Sweet V.).....	6-8	April, Oct.	Violet	Common white wild
<i>palmata</i> (Palm V.).....	6-8	May	Purple	Cut leaves like common purple
<i>pedata</i> (Birdsfoot V.).....	4	May	Violet and lilac	Rare. Acid soil
<i>pubescens</i> (Downy Yellow V.)...	5-10	May	Yellow	First sort has leafy stems, other does not
<i>rotundifolia</i> (Roundleaf V.)..	5	May	Yellow	
<i>Yucca baccata</i>	36	June	White	Tender
<i>brevifolia</i>	360	June	White	Really trees
<i>filamentosa</i>	60	June	White	Evergreen
<i>glauca</i> (Soapweed).....	60	June	White	Gray leaves
<i>harrimaniae</i>	4-8	July	White	Tiny Yucca

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